Commonwealth of Massachusetts

Department
of Education

Massachusetts 1993 Youth Risk Behavior Survey Results

June 1994

Massachusetts Board of Education

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obert V. Antonucci
Commissioner

June, 1994

Dear Parents, Students, and Colleagues:

We are pleased to present the results of the Department of Education's 1993 Youth Risk Behavior Survey of Massachusetts high school students. The survey was administered between February and May, 1993 in 45 public high schools statewide. *Because of high rates of school and student participation, the 1993 data can be used to accurately estimate the prevalence of important health behaviors among public high school students throughout Massachusetts.*

This research offers important information about the behaviors of high school students which may increase their risk for a number of health problems. These behaviors include tobacco, alcohol, and other drug use; sexual activity; weapon carrying, physical fighting, suicidal behaviors, and other activities related to injuries; and dietary behaviors and physical activity.

There are several encouraging findings and some troubling findings also. Compared to 1990, public high school students in 1993 reported lower levels of alcohol use, and higher levels of seat belt use, AIDS/HIV prevention education, and communication with parents and other adult family members about AIDS/HIV. The data also indicate no increase in many high risk behaviors since 1990, attesting to the success of numerous efforts at local and state levels. However, more students than ever before report having planned for and attempted suicide in the past year, and levels of many other risk behaviors remain high.

We thank the many students, teachers, principals, and superintendents who took the time to assist the Department of Education in this important research effort. It is our hope that school staff and others concerned with the health of school-age youth will reflect on these findings and use them to promote comprehensive health education and human services programs at the local level. Staff from the Learning Support Services Cluster at the Department of Education are available to assist your district in these efforts.

An excise tax on tobacco products was enacted into law early in 1993. The proceeds from this tax have funded substantial efforts of both the Department of Education and the Department of Public Health in the 1993-1994 school year towards education in the areas of tobacco use and prevention and comprehensive health education in the schools. Funds have been provided for statewide and local initiatives and much needed resources have been provided directly to schools. We hope that the results of the next Youth Risk Behavior Survey, in 1995, will show results of these coordinated initiatives to improve the health and lives of our children.

Thank you for your own commitment to improving the lives and health of all Massachusetts students.

Sincerely,

Robert V. Antonucci

Robert V. Antonucci
Commissioner of Education

The Commonwealth
of Massachusetts
Department of Education

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Acknowledgements

The Massachusetts Board of Education and the Department of Education gratefully acknowledge the work of Annie H. Faulkner, AIDS/HIV Research Coordinator for the Department of Education, who was the principal investigator of the 1993 Youth Risk Behavior Survey and the author of this report.

The Massachusetts Department of Education AIDS/HIV Program extends its thanks to the more than 3000 public high school students who participated in the 1993 Youth Risk Behavior Survey. We are also grateful to the teachers, principals, and superintendents of the 45 participating schools for their support of and cooperation with this important research. We would like to thank Westat, Inc., for their immeasurable technical assistance through all phases of the survey, and the Division of Adolescent and School Health (DASH) at the U.S. Centers for Disease Control and Prevention (CDC) which provided funding for the survey.

We are also grateful to Massachusetts Commissioner of Public Health David Mulligan for his ongoing support of the Youth Risk Behavior Survey. The Department of Education AIDS/HIV Advisory Panel provided important feedback on an earlier draft of this report. The author would like to specifically thank AIDS/HIV Program staff and other Learning Support Services staff for their assistance in all phases of the project, including Kevin Cranston, Ginny Ehrlich, Pam Chamberlain, John Bynoe, Nancy Coville, Jeff Perrotti, Chuck Radlo, Nancy Kohn and Judith Bernard. Special thanks to Booth Simpson Designers who provided design assistance for the final report.

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1993 Youth Risk Behavior Survey Results, Executive Summary

Introduction and Survey Methods

The Massachusetts Youth Risk Behavior Survey (MYRBS) is conducted periodically by the Massachusetts Department of Education AIDS/HIV Program with funding from the U.S. Centers for Disease Control and Prevention (CDC). The survey focuses on behaviors related to leading causes of illness, disability and death among youth and adults in the United States. These include tobacco, alcohol and other drug use; sexual behaviors; weapon carrying, physical fighting, and suicidal behaviors; and dietary behaviors and physical activity. The 1993 MYRBS was conducted in the spring of 1993 in 45 randomly selected high schools across the state; 3,054 students, from grades 9 through 12, participated in the voluntary and anonymous survey. *Because of high participation rates and the inclusion of Boston students, the 1993 data provide an accurate estimate of the health risk behaviors of public high school students statewide.*

Tobacco, Alcohol, and Other Drug Use

Smoking levels have not changed significantly since 1990, and Massachusetts levels appear similar to national levels reported in 1991.[1] Two thirds of Massachusetts high school students have tried cigarette smoking and 30 percent reported smoking in the 30 days prior to the survey. One quarter of students reported ever having been regular smokers, and 12 percent reported smoking every day in the previous month. Nearly one fifth of all students smoked on school property in the last month, and the same number tried to quit smoking in the last six months. Cigarette use is significantly associated with alcohol use among Massachusetts high school students.

Alcohol use among Massachusetts high school students has decreased significantly since 1990, while reported use of illegal drugs has not changed. Alcohol use remains more prevalent than tobacco use, and the use of illegal drugs is approximately equal to the national level reported in 1991.[1] In 1993, three quarters of students had tried alcohol and one half had used alcohol in the 30 days prior to the survey. Over one quarter of all students had at least five drinks on one or more occasions in the last month and one fifth of students reported marijuana use during that time. Fewer than three percent of all students reported ever injecting an illegal drug.

Sexual Behaviors and AIDS/HIV Prevention Education

Levels of sexual activity among Massachusetts high school students have not increased since 1990. However, between 1990 and 1993 there were significant increases in the percentage of students who report having been taught about AIDS/HIV in school (from 78to 90 percent) and in the percentage who report having spoken to a parent or other adult family member about AIDS/HIV (from 50 to 59 percent). Having received AIDS/HIV prevention education in school is associated with having spoken to a parent or adult family member about AIDS/HIV, with having lower levels of sexual activity and, among the sexually active, with making increased use of condoms. One half of Massachusetts public high school students have received instruction in school on the use of a condom and half have received a presentation by a person living with AIDS/HIV.

Approximately one half of all high school students reported ever having sexual intercourse, and 30 percent reported having sexual intercourse within the three months preceding the survey. The majority of sexually experienced students have had more than one sexual partner, and six percent reported some sexual contact with a person of the same sex. One half of sexually active students used a condom the last time they had intercourse, and 30 percent used no contraceptive method at last intercourse.

Weapon Carrying, Physical Fighting, Suicide, and Other Injury-Related Behaviors

Weapon carrying among high school students did not change significantly between 1990 and 1993. The percentage of students who always or almost always wear a seat belt has increased substantially from 28 percent to 39 percent. However, suicide plans and attempts increased significantly since 1990. In 1993, 20 percent reported having made a plan of how to commit suicide in the past year, compared to 14 percent in 1990; 10 percent reported having attempted suicide within the past year, compared to six percent in 1990.

One in five students carried a weapon somewhere in the thirty days prior to the survey and one in ten reported carrying a weapon on school property. Fifteen percent reported being in a physical fight on school property and nine percent reported being threatened or injured with a weapon on school property in the last year. During the month preceding the survey, one third of all students rode with a driver who had been drinking alcohol. Over 10 percent of students drove a car in the last month after drinking alcohol, including 23 percent of seniors.

Dietary Behaviors and Physical Activity

One half of Massachusetts high school students think of themselves as being about the right weight, and two out of five students reported currently trying to lose weight. Significantly more adolescent women than men consider themselves overweight and reported trying to lose weight. Five percent of all students reported using diet pills or making themselves vomit in order to lose weight. Four-fifths of high school students attend a physical education class in the average school week, but only 60 percent spend 20 minutes or more of that class actually exercising. Between 50 and 60 percent of students reported getting some form of exercise at least three days a week. One half of students played on a school-based athletic team in the prior year; 40 percent played on a team organized outside of school.

Conclusions

The 1993 MYRBS results indicate that there have not been increases in most health risk behaviors among Massachusetts high school students since 1990 and there have been shifts towards healthier behaviors in several important areas. These encouraging trends represent the successful efforts at the local and state levels to affect adolescents' choices and behavior in positive and healthy ways.

At the same time, existing levels of risk behaviors, and increases in certain specific behaviors, are causes for real concern. The Department of Education provides funding to school districts for the expansion and enhancement of comprehensive school health education and human services programs. The Department believes that school-based programs can be most effective when coordinated with efforts of community agencies, parents, and other groups to provide a comprehensive network of educational, support, and health services to our adolescent population.

1 INTRODUCTION AND SURVEY METHODS

This report presents the results of the 1993 Massachusetts Youth Risk Behavior Survey (MYRBS). The MYRBS is conducted periodically by the Massachusetts Department of Education AIDS/HIV Program with funding and technical assistance from the Division of Adolescent and School Health of the U.S. Centers for Disease Control and Prevention. The MYRBS focuses on several health areas related to the leading causes of illness, injury, and death among youth and adults in the U.S. These include: tobacco, alcohol, and other drug use; sexual behaviors related to unintended pregnancy and sexually transmitted disease, including HIV infection; behaviors related to intentional and unintentional injuries (including weapon-carrying, suicidal behaviors, and drinking and driving); and dietary behaviors and physical activity. The MYRBS is designed both to focus state and local efforts on these health risk behaviors as they become established during youth and to monitor progress in fostering change in these behaviors over time.

The 1993 Massachusetts Youth Risk Behavior Survey was conducted between February and May, 1993 in randomly selected public high schools across the state.[2] In 1993, Boston high schools were included in the state-wide school sample for the first time.[3] Of the 51 schools randomly selected, 45 schools (88%) agreed to participate. Within these 45 schools, three to five classrooms of 9th through 12th grade students were randomly selected to participate in the survey. This yielded an average of approximately 70 students per school for a total of 3,054 students.

The questionnaire consisted of 89 multiple choice questions and was based on a standardized youth risk behavior survey instrument produced by the U.S. Centers for Disease Control and Prevention. The survey was self-administered and was available in Spanish and in English to participating students. The English version of the questionnaire is reproduced in Appendix A; the Spanish instrument is available upon request. Schools had the option of notifying parents of their child's selection for survey participation; fewer than 10 students were denied parental permission to take the survey. The survey was anonymous and voluntary; fewer than five of the randomly selected students who were present on the days of the survey chose not to complete the survey.

The high participation rates and the inclusion of Boston students mean that the 1993 Massachusetts YRBS data can be used to estimate the prevalence of important health behaviors among public high school students in the entire state.

This report updates information provided in the ***Massachusetts 1992 Youth Risk Behavior Survey Results***. Importantly, the 1992 results *did not include* Boston students and were not generalizable to the entire public high school population. Therefore, the 1993 survey results are compared with the results of the *1990* MYRBS to estimate changes in certain health-related behaviors over the three-year time period.[4] The 1993 data can also be used to examine differences in risk behaviors by grade, gender, and other characteristics. Estimated numbers of students engaging in various behaviors are calculated by multiplying the percentage of the population by 230,000, the total number of public high school students in the state as of October, 1992. In general, the 1993 estimates of health behaviors are accurate to within plus or minus three percentage points.[5]

The demographic characteristics of the student sample are presented below in Table 1 and reflect intentional oversampling of Boston students[6] and variations in school attendance rates by grade. The sample has been statistically weighted to correct for slight variations in grade and gender and to correct for this intentional oversampling of Boston students. *The weighted survey results presented in this report accurately represent the grade, sex, and racial/ethnic characteristics of all Massachusetts public high school students.* Further information about sampling and weighting procedures can be found in Appendix B.

Table 1. Demographic Characteristics of the Massachusetts 1993 YRBS Student Sample

Grade	*Number*	*Percent*	Sex	*Number*	*Percent*	Race/Ethnicity	*Number*	*Percent*
9th	817	26.8	Male	1501	49.2	White	2306	75.5
10th	929	30.4	Female	1549	50.7	Black	122	7.9
11th	649	21.3	no answer	4	0.1	Hispanic	109	6.3
12th	643	21.1				Other***	147	9.9
Other**	16	0.5				no answer	12	0.4
Total	3054	100.1****	Total	3054	100.0	Total	3054	100.0

* Percent of total sample. ** Includes higher grades, ungraded, and no answer.
*** Includes Asian, Pacific Islander, Native American, and other race/ethnicities. ****Error due to rounding.

Each chapter begins with an introduction that provides background information on specific risk behaviors and their related health outcomes. A brief description of the survey questions is provided; the complete questionnaire is provided in Appendix A. Each chapter includes a summary of the major findings, followed by more detailed findings and illustrative graphs and charts. Each chapter presents a brief discussion of implications of the findings. The report concludes with some considerations and recommendations for school health program planning and improvement.

For more information about the survey, please contact the Department of Education AIDS/HIV Program, 350 Main Street, Malden, MA 02148; 617-388-3300 ext. 387 or 388.

2 TOBACCO USE

Introduction

Tobacco use accounts for one out of every five deaths in the United States[7,8] and is the single most important preventable cause of death. Smoking causes heart disease, many forms of cancer, stroke, and chronic obstructive pulmonary disease. Smoking is also associated with poor academic performance and with the use of alcohol and other drugs.[9] Nearly one fourth of Massachusetts adults are current smokers.[18] Over one million adolescents in the United States begin smoking each year.[10] Smokeless tobacco use (chewing tobacco) is related to oral cancer and other oral health problems.[11] Between 1970 and 1986 the prevalence of smokeless tobacco use more than quadrupled among men aged 17 to 19.[12]

In November, 1992 Massachusetts citizens voted to increase the state tax on tobacco products by 25 cents per unit sold. One of the purposes of this law was to reduce tobacco use by Massachusetts adolescents through a) increasing the financial barriers to tobacco use in this population and b) increasing education, prevention and cessation programming funded by the increased tax revenues. The goal of the Massachusetts Tobacco Control Program is to reduce by 50 percent the proportion of Massachusetts residents who smoke by 1999. In addition, the Massachusetts Education Reform Law of 1993 made it illegal for students, school staff and visitors to smoke on Massachusetts school property at any time.

The 1993 Massachusetts Youth Risk Behavior Survey (MYRBS) asked students to report their history of and current use of cigarettes and other tobacco products both on and off school property, and about recent attempts to quit smoking. Because the survey was conducted during the spring of 1993, the data reflect tobacco use levels *after* the implementation of the increased tobacco tax but *before* the implementation of programs funded by the tax, including the Health Protection Grant Program (Department of Education) and the Massachusetts Tobacco Control Program (Department of Public Health). The goals of these programs include increasing adolescents' access to education, prevention and cessation services throughout the Commonwealth.

Summary of Results

Reported tobacco use in the spring of 1993 by Massachusetts high school students does not appear to have changed significantly since 1990. High school smoking rates in Massachusetts are similar to national adolescent smoking rates from 1991.[6] Over two thirds of Massachusetts high school students have tried cigarette smoking; nearly one third have smoked cigarettes within the past month and over 10 percent currently smoke every day. There are no significant differences in smoking initiation, history of regular smoking, or current smoking prevalence between adolescent male and female students. However, significant differences do exist by racial/ethnic group, with white students reporting significantly more tobacco use than other students. While overall tobacco use levels did not change between 1990 and 1993, there is some evidence of an increase in tobacco use among 9th graders over the three year period.

Lifetime Cigarette Use

- Approximately two thirds (68%) of Massachusetts students report having ever tried cigarette smoking (lifetime use = ever tried smoking, even one or two puffs). Table 2 summarizes the 1993 estimates of tobacco use among Massachusetts high school students.
- Nearly one quarter (24%) of Massachusetts public high school students smoked a whole cigarette for the first time before age 13.
- Between 1990 and 1993 there was no increase in the percentage of high school students who have ever smoked cigarettes (Figure 2A).

Table 2. Tobacco Use Behaviors Among Massachusetts High School Students, 1993.

Behavior	*Percent*
Ever tried smoking cigarettes	68
Ever smoked cigarettes regularly*	25
Smoked a whole cigarette before age 13	24
Smoked regularly* before age 13	8
Tried to quit smoking in the last six months	18
Smoked a cigarette in the last month	30
Smoked regularly in the last month	12
Smoked on school property in the last month	18
Used chewing tobacco in the last month	9
Used chewing tobacco on school property in the last month	5

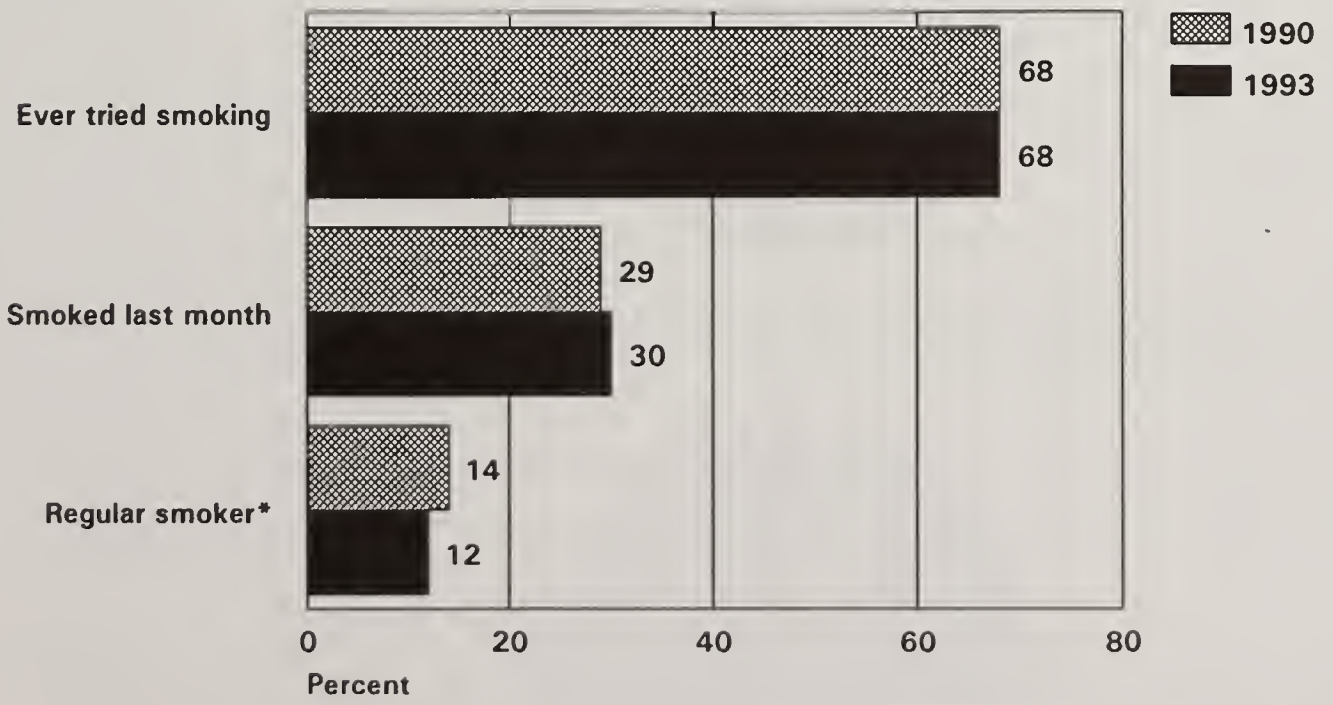
* Regularly = at least one cigarette per day for 30 days or more.

- Lifetime use of cigarettes increases with grade, from 64% of 9th graders to 73% of 12th graders. Since 1990, estimates of cigarette use increased for 9th graders and decreased for 12th graders; however, the changes are not statistically significant.
- White students were significantly more likely to report having ever smoked regularly (28%) than black students (12%) or students classified as "other" (Asian-American and Native American/Alaska Native)(18%); 20% of Hispanic students report ever having smoked; in this sample this is not significantly different from the rate among whites.

Recent Smoking Behavior

- Thirty percent of high school students reported smoking cigarettes during the month preceding the survey. This represents no change from 1990 (Figure 2A).
- Nearly one fifth (18%) report having tried to quit smoking in the past 6 months, representing approximately 40,710 high school students statewide.
- Nearly one fifth (18%) of students reported smoking cigarettes on school property during the last month.

Figure 2A. Cigarette Smoking Among Massachusetts High School Students, 1990 and 1993.



* Regular smoking = at least one cigarette a day for the past 30 days.
Changes between 1990 and 1993 are not statistically significant.

- Recent cigarette use increases only modestly with grade level, from 29% of 9th graders to 36% of 12th graders. However, recent smoking among 9th graders is considerably higher in 1993 than in 1990 (21%); the difference is not statistically significant due to sample size.

- White students were significantly more likely to report having smoked during the previous month (32%) than were black students (21%) or "other" students (22%); 25% of Hispanic students reported smoking during the past month.

Regular Smoking and Smoking Intensity

- One quarter (25%) of Massachusetts students report having smoked regularly at some point in their lives (regular smoking is defined as smoking at least one cigarette per day for at least 30 days in a row). This represents no significant change from 1990.
- Of high school seniors who had ever been regular smokers (31%), roughly half began smoking regularly before age 15; another significant proportion began between ages of 15 and 16 (see Figure 2B).

Figure 2B. Age of First Regular Smoking Among Massachusetts High School Seniors, 1993.

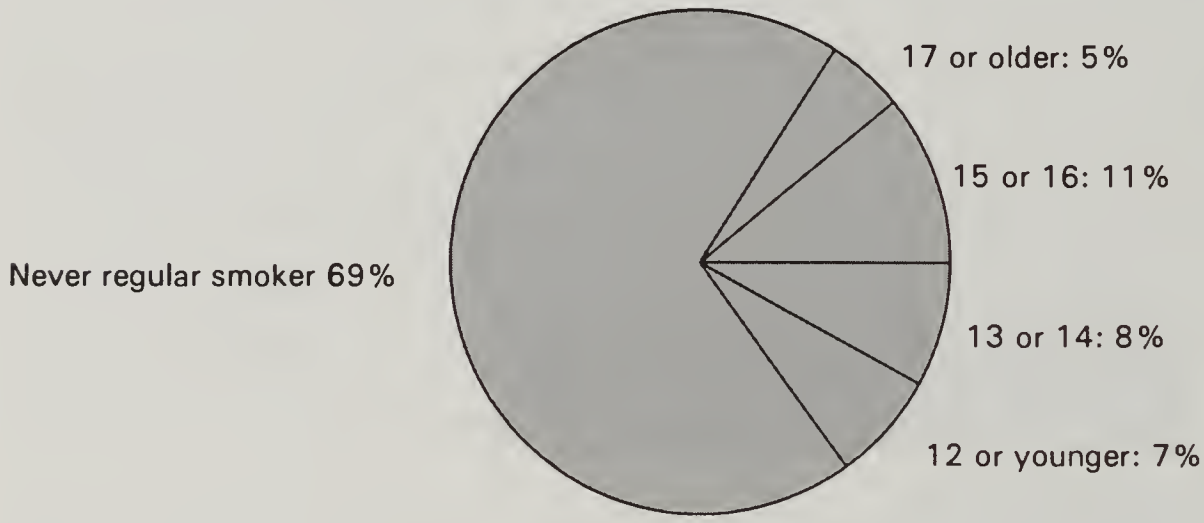
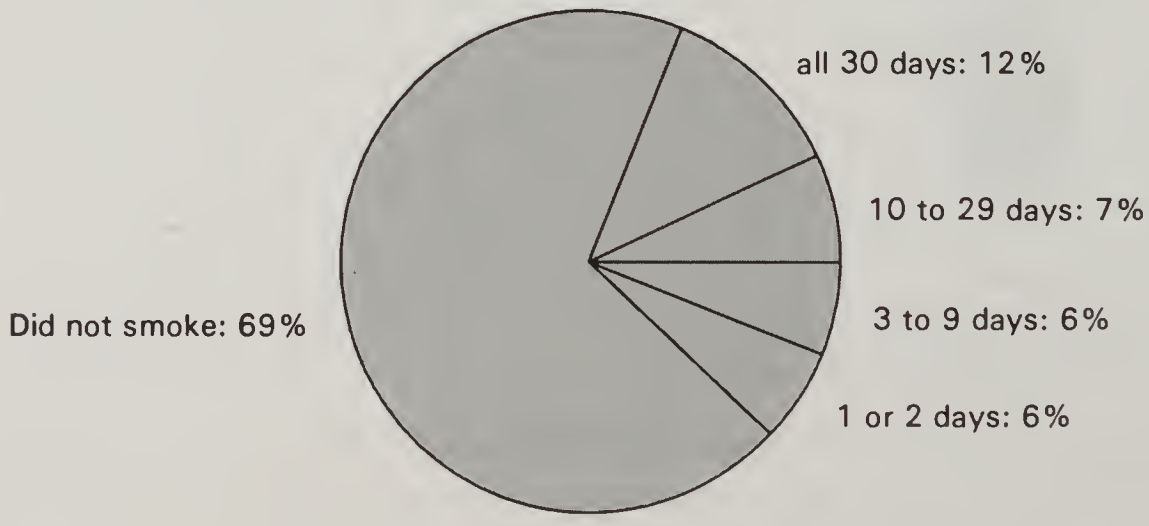


Figure 2C. Number of Days Students Smoked Cigarettes in the Last Month, 1993.



- Over 1 in 10 students (12%) reported smoking on every one of the last 30 days, representing approximately 27,370 students (Figure 2C). Current regular smoking increases from 8 percent of 9th graders to 16 percent of 12th graders.
- Of all high school students, 12% smoked 5 or more cigarettes per day, and 7 percent smoked 11 or more cigarettes per day on the days they smoked in the last month. The majority of smokers smoked 2 or more cigarettes per day.

Chewing Tobacco and Snuff

- Nine percent (9%) of students report using chewing tobacco or snuff during the past 30 days; this reflects 17 percent of men and 1.5 percent of women.
- Five percent (5%) report using chewing tobacco or snuff on school property during the past 30 days; 10 percent of men and less than one percent of women reported this behavior.
- White students were significantly more likely to report using chewing tobacco or snuff during the last 30 days (6%) than black students (1.4%) or Hispanic students (0.5%); "other" students reported a similar level to white students (5%).

Association of Cigarette Use With Alcohol Use

- Students who reported cigarette use in the last month were more than twice as likely to report alcoho! use than were current non-smokers; 80% of smokers used alcohol in the last month compared to 32% of non-smokers. (There are no comparable results for 1990).
- Students who reported drinking alcohol in the last month were four to five times more likely to have smoked cigarettes during that time than non-drinkers; 51% of recent drinkers smoked cigarettes in the last month compared to only 11% of non-drinkers.
- These associations also hold up for more intensive levels of use: very frequent smokers (those who smoked at least 20 of the past 30 days) were significantly more likely to report very frequent alcohol use (at least 6 of the past 30 days) than were less frequent smokers; the reverse is also true.
- Approximately half of all public high school students (47%) used neither cigarettes nor tobacco during the 30 days preceding the survey.

Implications and Recommendations

The survey results indicate that many high school students have experimented with tobacco and even become regular smokers at very early ages and before reaching high school. Primary prevention activities, which include school-based tobacco prevention education, should begin in the early elementary grades and continue through the ages of typical initiation. The evidence for an increase in smoking among 9th grade students suggests the particular importance of tobacco prevention education in the middle school and early high school years.

The strong connections between cigarette smoking and alcohol use suggest that tobacco prevention education should incorporate discussion of alcohol use as it is related to tobacco use. Comprehensive health education programs can address tobacco, alcohol, and other drug use in an integrated program on substance use and related issues. In addition to prevention education, these data also suggest that high school students need access to appropriate tobacco cessation assistance services. The high percentage of students reporting that they have tried to quit smoking in the past six months indicates a large potential need for tobacco cessation services designed specifically for adolescents. Again, the connections between heavy tobacco use and heavy alcohol use need to be addressed if either addiction is to be effectively managed.

The large number of students reporting smoking cigarettes or using chewing tobacco on school property suggests that the new, mandated Tobacco-Free Schools policies will need effective compliance strategies at the school building level. These data reflect tobacco use *prior* to any implementation of the Massachusetts Tobacco Control Program, the Health Protection Grant Program, and the Education Reform Act. Further research will be needed to determine the effectiveness of newly-implemented local and state-wide programs for preventing and reducing tobacco use by adolescents both on and off school property.

3 ALCOHOL, MARIJUANA, COCAINE AND OTHER DRUG USE

Introduction

Alcohol is a leading factor in approximately half of all homicides, suicides, and motor vehicle crashes,[13] which are the leading causes of death and disability among young people[10]. Heavy drinking among youth has been linked conclusively to physical fights, destroyed property, academic and job problems, and trouble with law enforcement authorities.[14] Approximately 100,000 American deaths each year are attributable to the misuse of alcohol.[10] National health objectives for the year 2000 include increasing the average age of first use of alcohol and reducing the proportion of students reporting current and frequent alcohol use. The Massachusetts Youth Risk Behavior Survey (MYRBS) asked students to report their history of alcohol use and their current alcohol use patterns.

The abuse of drugs other than alcohol and tobacco is associated with injuries, early unwanted pregnancy, school failure, delinquency, and the transmission of sexually transmitted diseases including human immunodeficiency virus (HIV) infection.[15] As many as one in four American adolescents is estimated to be at very high risk for the consequences of alcohol and other drug problems.[16] Illicit drug use among high school students and other young adults is higher in the United States than in any other industrialized nation.[17] The Massachusetts Youth Risk Behavior Survey asked students to report recent and lifetime use of a variety of drugs, including marijuana, cocaine, steroids, injectable drugs, and other illegal substances.

Summary of Results

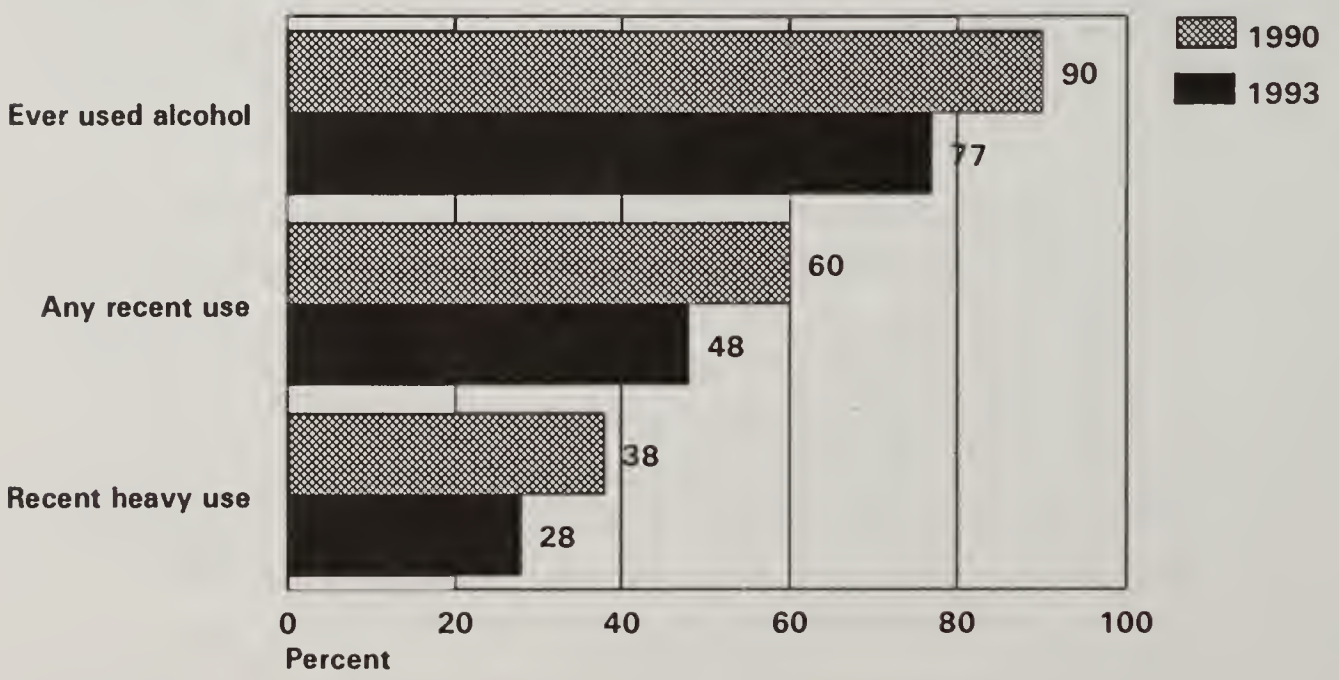
Reported lifetime and recent alcohol use among Massachusetts public high school students has declined significantly since 1990, and the Massachusetts figures are slightly lower than the national levels from 1991.[1] Alcohol use is more prevalent among Massachusetts high school students than is cigarette smoking, with 76 percent reporting lifetime use and 47 percent reporting alcohol use in the last 30 days. Reported drinking behavior does not vary significantly by gender except in the case of recent heavy drinking where fewer adolescent women than men report this behavior. Recent heavy drinking was reported significantly more frequently by white students compared to black students. Other racial/ethnic variations in reported drinking behavior were non-significant due to inadequate sample sizes.

Reported illegal drug use among Massachusetts public high school students has not changed significantly since 1990, and is similar to national drug use rates in 1991. Marijuana use is the most prevalent of all illegal drugs used and less than three percent of students reported having injected an illegal drug. Reported drug use is the same whether or not Boston students are included in the analysis. Nearly one third of students reported being given, being offered or being sold an illegal drug on school property during the last 12 months. Drug use varies inconsistently by race/ethnicity, with black students reporting the higher levels of early marijuana use and white students reporting higher use of other illegal drugs such as LSD, PCP, and the like.

Alcohol Use

- Between 1990 and 1993 there have been statistically significant reductions in reported lifetime and recent alcohol use (Figure 3A).
- In 1993, three quarters (76%) of all high school students reported having used alcohol (excluding a few sips for religious purposes) at least once (lifetime use).
- Nearly one half (47%) of high school students report having at least one drink of alcohol in the last 30 days; this translates into over 109,000 public high school students statewide (Figures 3A and 3C).
- Over one quarter of students (28%) report having five or more drinks on at least one occasion during the last 30 days; this reflects over 63,000 students statewide.

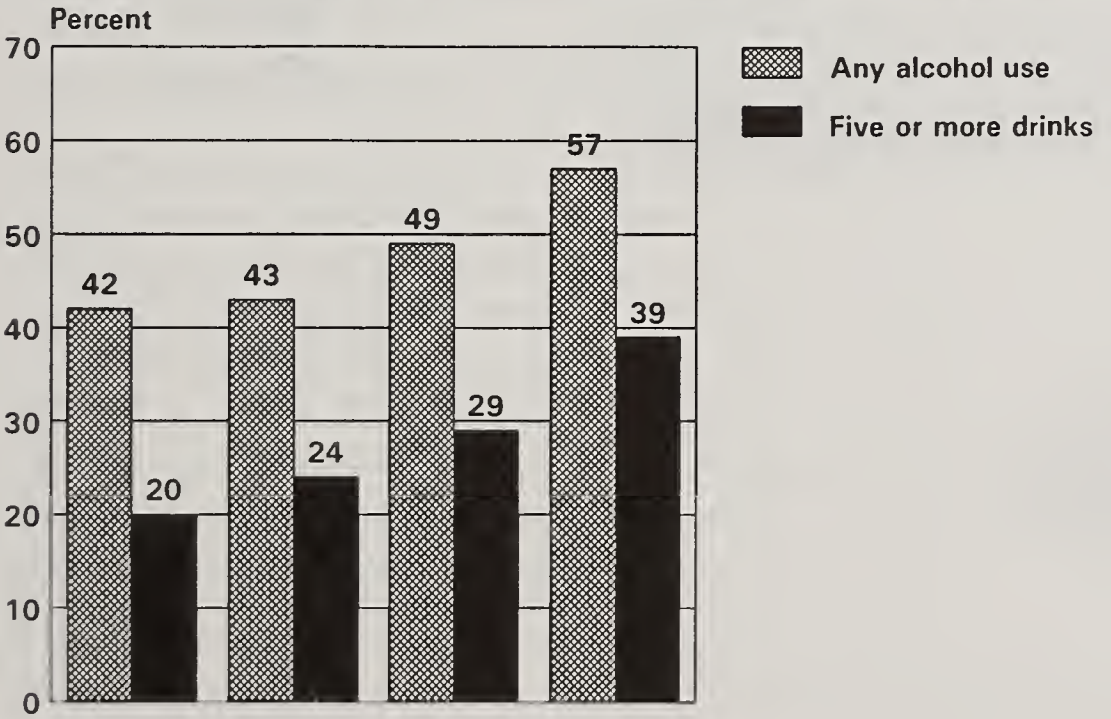
Figure 3A. Alcohol Use* by Massachusetts High School Students, 1990 and 1993.



* Alcohol includes beer, wine, wine cooler, and liquor. Recent use = use within the 30 days prior to the survey.
Heavy use = 5 or more drinks in a row on one or more occasions in the past 30 days. Changes are statistically significant.

- Lifetime use was reported by 70 percent of 9th graders, 72 percent of 10th graders, 81 percent of 11th graders, and 84 percent of 12th graders.
- Between 9th and 12th grade there is a statistically significant increase in the percentage of students reporting recent drinking behavior (Figure 3B).

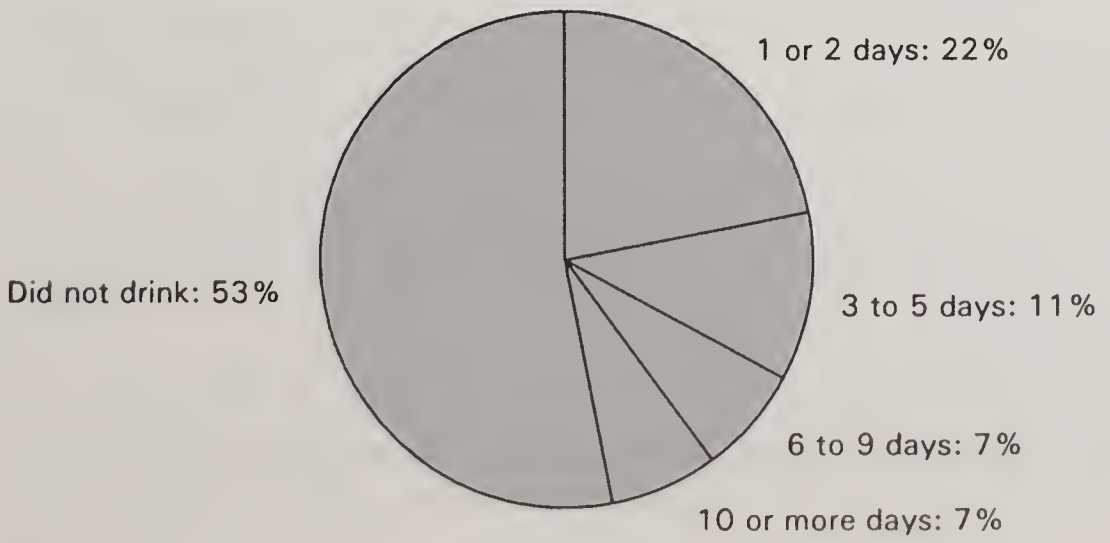
Figure 3B. Alcohol Use in the Month Prior to the Survey, by Grade, 1993.



Alcohol includes beer, wine, wine coolers, and liquor. Five or more drinks refers to the number of drinks in a row per occasion.

- Fourteen percent of students reported using alcohol on six or more days in the month prior to the survey (Figure 3C).

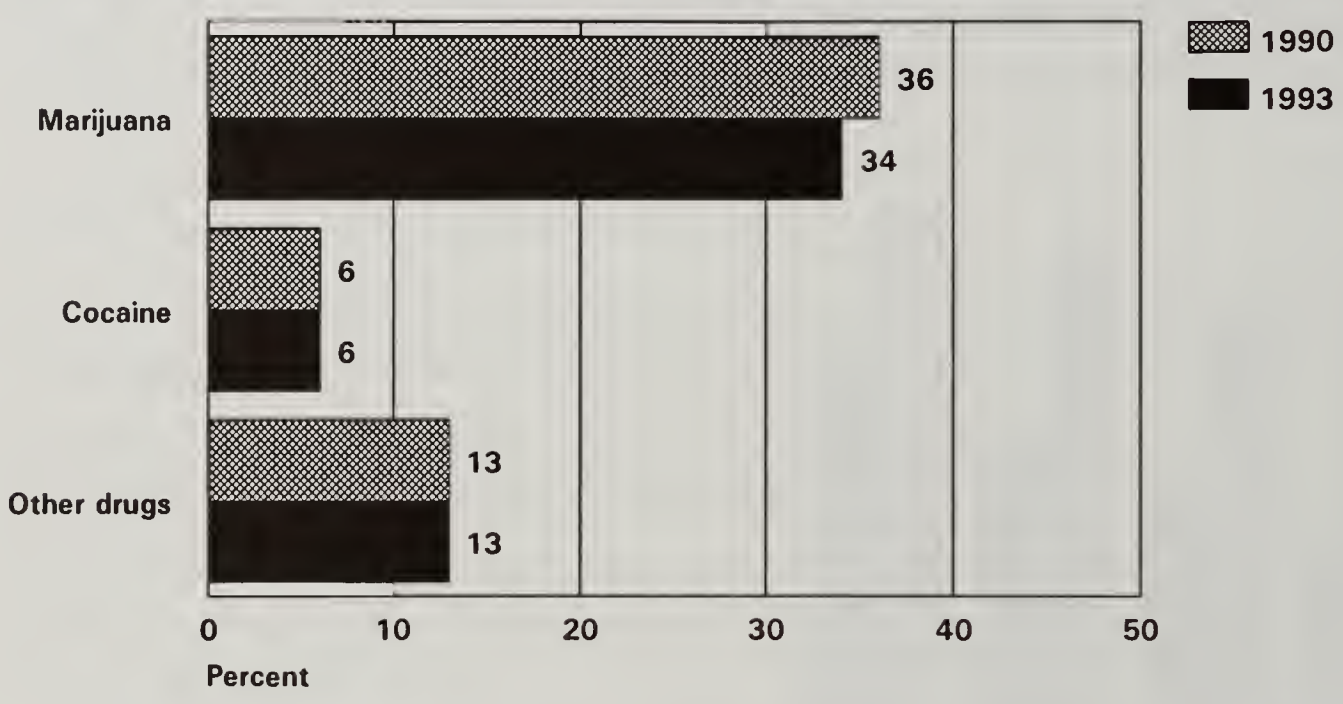
Figure 3C. Number of Days Students Used Alcohol in the Month Prior to the Survey, 1993.



Marijuana, Cocaine, and Other Illegal Drugs

- The 1993 reported drug use levels for Massachusetts public high school students are essentially the same as those from 1990 (Figure 3D).

Figure 3D. Marijuana, Cocaine, and Other Drug Use* by High School Students, 1990 and 1993.



* Use = ever used in their lifetime. Other illegal drugs include LSD, PCP, ecstacy, mushrooms, speed, ice, heroin, or pills.

- One third (34%) of students reported having ever used marijuana in their lifetime; 20 percent reported using marijuana in the last 30 days; seven percent reported having used marijuana on school property during the last 30 days.
- Black students were more than twice as likely as white students to report having tried marijuana for the first time prior to age 13 (15% to 6%, respectively); other comparisons by race/ethnicity are non-significant.
- Six percent (6%) reported using cocaine in their lifetime; 2.5 percent reported using cocaine in the last 30 days; there were no racial/ethnic differences in cocaine use.
- Thirteen percent (13%) of high school students reported using other illegal drugs (such as LSD, PCP, ecstacy, heroin, etc.) in their lifetime; white students were four times more likely to report using other illegal drugs as were black or Hispanic students (14% versus 3.5% and 3.5%).
- Steroid use was reported by 3.7 percent of students; white and black students were significantly more likely than Hispanic students to report steroid use (4% white, 3.4% black, 0.3% Hispanic).

- Of all students, 2.6 percent reported having ever injected an illegal drug; small sample sizes prevented comparisons of injection drug use by race/ethnicity.
- Nearly one third of students (31%) report having been offered, been sold or been given drugs on school property during the past 12 months. This did not vary significantly by students' race or ethnicity, and translates into over 72,000 students having been offered, sold, or given a drug at school in the past year.

Implications and Recommendations

Alcohol use is very prevalent among Massachusetts public high school students and is more prevalent than tobacco use. The survey results suggest that a large proportion of Massachusetts adolescents use alcohol regularly and that excessive alcohol use is frequent. In comparison with a recent survey of alcohol use among Massachusetts adults,[18] the survey results suggest that high school students in the state have levels of alcohol use similar to young adults aged 18 to 24, and higher than adults in general. At the same time, the significant decline in reported alcohol use since 1990 suggests that alcohol abuse prevention programs implemented in school and communities across the state, as well as nationally, may be having an impact.

While alcohol abuse and addiction are problems in their own right, they are also associated with accidents, violence, suicide, and early sexual activity. Because alcohol is connected to these and other health problems, education to prevent the misuse of alcohol should be integrated within a comprehensive school health education program. Furthermore, school-based efforts to prevent alcohol abuse may be most effective when integrated with other community efforts aimed at education, prevention, and the treatment of alcohol and other substance abuse. In light of the significant proportion of students using alcohol on school property, Drug-Free Schools certification policies and local codes of discipline regarding use of alcohol and other drugs on school property may need more vigilant enforcement.

The MYRBS shows no increase in the use of marijuana and other drugs since 1990. While marijuana use is less prevalent than alcohol or tobacco use, it remains the most commonly used illegal drug. Besides marijuana, illegal drugs are used by a minority of adolescents.

Racial/ethnic differences in reported drug use are confined to the early use of marijuana and to the use of drugs such as LSD, ecstacy, mushrooms and other drugs. These findings suggest that the use of illegal drugs is not confined to communities of color. All types of communities need to address the issues of illegal drug use among adolescents within a context of substance abuse prevention which includes alcohol and tobacco prevention education. All substance abuse education should be integrated within a comprehensive health education and human services program.

4 SEXUAL BEHAVIORS

Introduction

The Massachusetts Youth Risk Behavior Survey measures sexual behaviors related to unintended pregnancy and sexually transmitted diseases including HIV infection. The MYRBS measures the prevalence of sexual activity, the number and sex of sexual partners, age at first intercourse, the use of condoms and other contraceptives, students' preferences for access to condoms, and alcohol and drug use related to sexual activity. Early sexual activity is associated with unintended pregnancy and sexually transmitted diseases (STDs), including HIV infection. The number and sex of sexual partners and age at first intercourse are also associated with STDs. Alcohol and drug use may serve as predisposing factors for initiation of sexual activity and unprotected sexual intercourse.[19]

The MYRBS also measures some of the outcomes of sexual activity, including unwanted pregnancy and STDs. More than one million adolescent women in the United States get pregnant each year; three quarters of adolescent pregnancies occur among young people who are not using contraception. Nearly half of pregnant adolescents give birth and approximately 400,000 obtain abortions.[19] The rate of teen childbearing in the U.S. has increased every year since 1986.[20] The U.S. has the highest rates of adolescent pregnancy, abortion, and childbearing in the Western industrialized world.[19]

Sexually transmitted diseases contribute to excess illness, mortality, and health care costs among adolescents, young adults, and newborns. Young women bear a large burden of the consequences of STDs, including pelvic inflammatory disease, infertility, ectopic pregnancy, and cervical cancer. Two thirds of the 12 million STD infections each year are acquired by persons under 25 years old. The three most common STDs in Massachusetts are gonorrhea, chlamydia, and syphilis, though a total of nine different STDs are reportable by law.[21] In 1992, 2,939 cases of chlamydia, 705 cases of gonorrhea, and 60 cases of syphilis were reported for Massachusetts youth ages 10 to 19.[21]

Summary of Results

The survey results indicate that there has been no increase in sexual activity among high school students since 1990, and a small but insignificant increase in condom use among sexually active students. Between 1990 and 1993 there was also no increase in the percentage of students who reported having had four or more sexual partners, having been

pregnant, caused a pregnancy, or having been diagnosed with a sexually transmitted disease. Approximately one half of students reported having had sexual intercourse in their lifetime and 30 percent reported having intercourse within the past three months. Among the sexually active, condom use at last intercourse increased from 47% to 52%, though the change was not statistically significant. Fifteen percent of all students (and about 30 percent of sexually experienced students), reported having had four or more sexual partners. Six percent of all students reported having been pregnant or caused a pregnancy and five percent report having been diagnosed with an STD.

Since 1990 there has been an increase in the percentage of students reporting having had sexual intercourse prior to age 13. Most sexually experienced students report having had more than one sexual partner, and six percent of sexually experienced students reported sexual contact with a person of the same sex. One third of sexually active students reported using no effective method of contraception the last time they had sexual intercourse. Pharmacies, convenience stores and school-based condom vending machines were cited by students as the places they would most likely go if they wanted to obtain condoms. The results also indicate an association between recent heavy alcohol use and higher levels of lifetime and recent sexual activity among Massachusetts public high school students.

Sexual Activity

- In 1993, an estimated 49 percent of Massachusetts high school students had had sexual intercourse; this is not significantly different from the 46 percent level estimated in 1990.
- In 1993, approximately eight percent of students had had sexual intercourse before age 13; this is significantly higher than 1990, when the level was five percent.
- One quarter (25%) of high school students had had sexual intercourse by age 14.

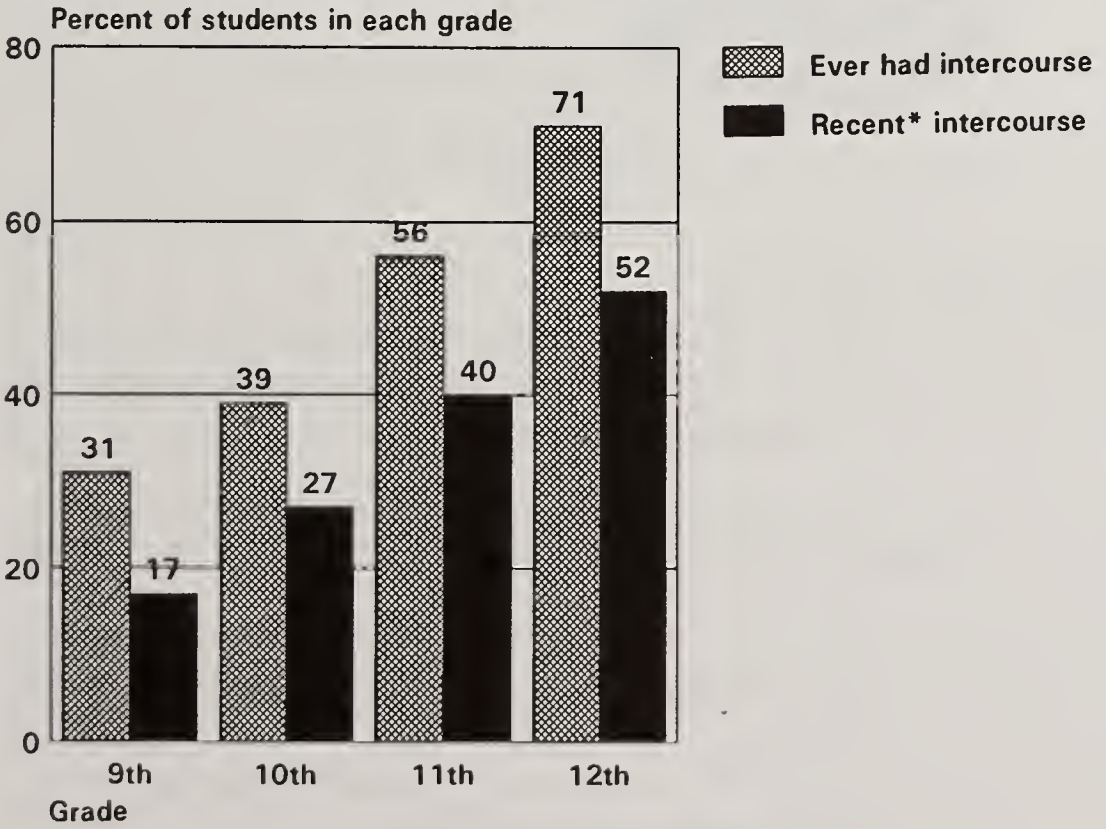
Table 4.1. Sexual Activity Estimates for Massachusetts High School Students, 1993.

	Percent of Students	
Behavior	*1990*	*1993*
Ever had sexual intercourse	46%	49%
Had sexual intercourse before age 13	5%	8%*
Had sexual intercourse in last 3 months	34%	33%
Had 4 or more sexual partners in life	13%	15%
Had sexual contact with their same sex	na**	6%

* Change is statistically significant; other changes are not significant. ** data not available for 1990.

- While 31 percent of 9th graders had had sexual intercourse by the spring of freshman year, the data suggest that another 40 percent of high school students begin to be sexually active over the remaining high school years (Figure 4A).
- Nearly 30 percent of 12th grade students, by the spring of their senior year, reported never having had sexual intercourse.
- One third (33%) of all high school students reported having had sexual intercourse within the past three months; this translates into approximately 77,000 students statewide.
- Lifetime and recent sexual activity increases significantly between 9th grade and 12th grade (Figure 4A).

Figure 4A. Sexual Experience and Recent Sexual Activity of High School Students, by Grade, 1993.

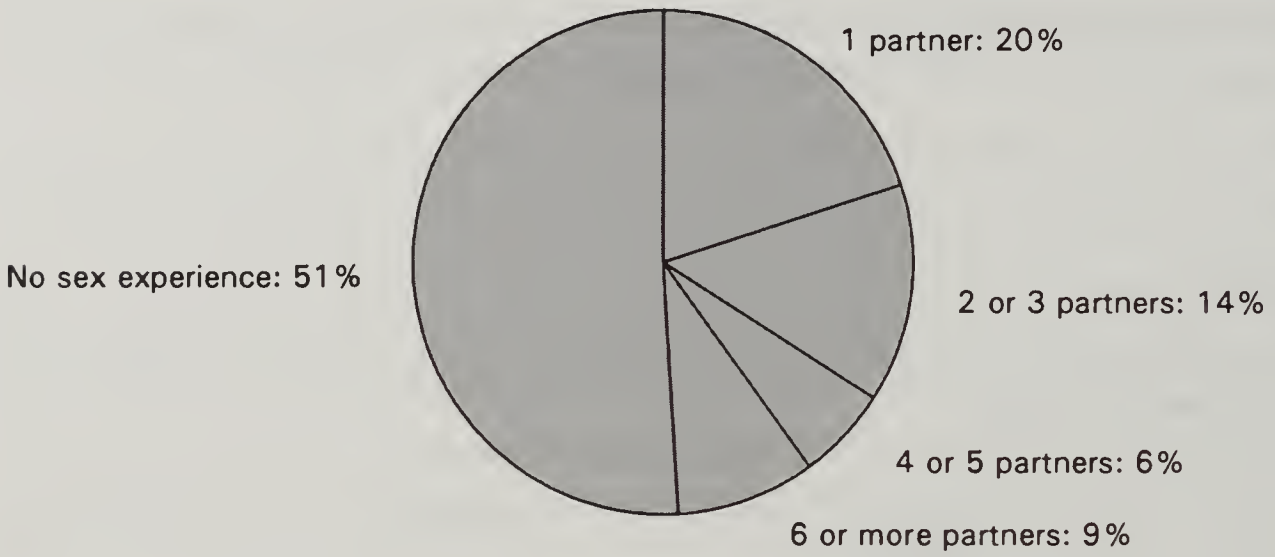


* Recent intercourse = sexual intercourse within the three months prior to the survey.

- Fifteen (15%) percent of all high school students in 1993 reported having had four or more sexual partners in their lifetime; this is not significantly different from the 1990 level, and translates into 33,000 high school students statewide (see Figure 4B).
- Among sexually experienced students, a majority (60%) had had at least two sexual partners in their lifetime.

- Among sexually experienced students, six percent reported sexual contact either with persons of both sexes or with persons of their same sex; three percent of sexually experienced students reported same sex contact exclusively.

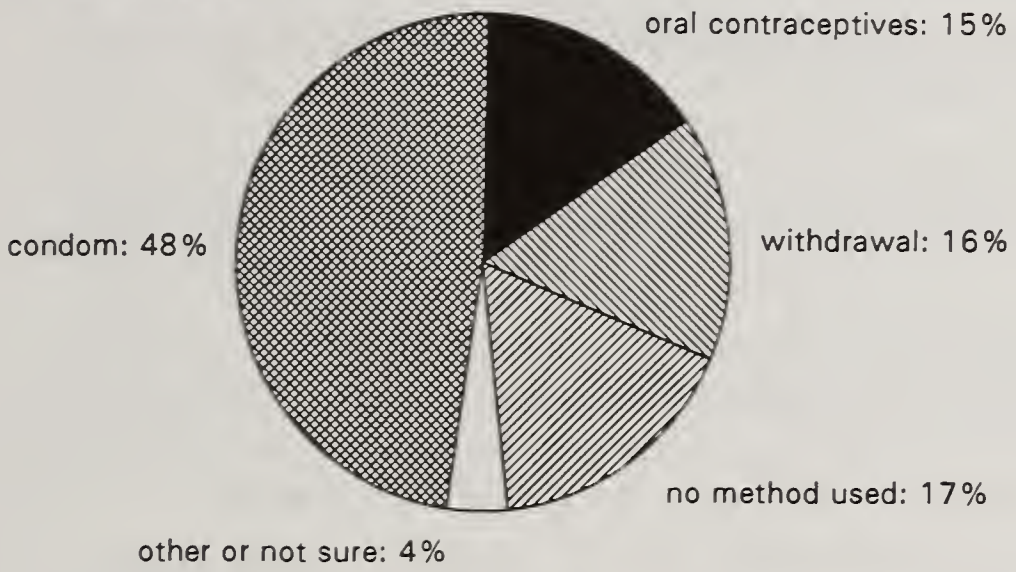
Figure 4B. Number of Sexual Partners of Massachusetts High School Students, 1993.



Condom Use and Other Contraceptive Use

- Of students having had sexual intercourse in the last three months, 52 percent reported having used a condom with their partner the last time they had sexual intercourse. The increase from 47 percent in 1990 is not statistically significant.
- For those sexually active within the past three months, condom use decreases significantly by grade level from 60 percent to 47 percent between 9th and 12th grade.
- Among all *contraceptive* methods, condoms are the most commonly used, with 48 percent of sexually active students reporting using this method at last sexual intercourse. This is slightly lower than the 52 percent overall condom use rate cited above, probably due to the practice of combining condoms with other contraceptive methods to increase contraceptive effectiveness and to prevent disease (see Figure 4C).
- Given that withdrawal is not an effective contraceptive method, Figure 4C indicates that one third of sexually experienced students did not use an effective method the last time they had sexual intercourse.
- Among sexually experienced students, the use of oral contraceptives ("the pill") increases from 9 percent to 26 percent between 9th and 12th grade.

Figure 4C. Contraceptive Method Used at Last Sexual Intercourse by Sexually Experienced High School Students, 1993.



- The 1993 MYRBS asked students, if they wanted to obtain condoms, where they would be most likely to go. Students' first choice for obtaining condoms was a local pharmacy or convenience store, followed closely by vending machines in school restrooms (Table 4.2).
- Very few students indicated that they would prefer to go to a school nurse or counselor or to their parents if they wanted to obtain condoms.

Table 4.2. High School Students' Preferences for Access to Condoms

*If condoms were available in **all** of the following places, to which **one** place would you be most likely to go if you wanted to obtain a condom?*	*Percent*
Local pharmacy or convenience store	33%
Vending machine in school restroom	28%
Vending machines in other places in my community	15%
Local health clinic or family planning clinic	8%
School nurse or counselor	7%
Parents or other adults in my family	4%
None of the above	6%

Excludes the 11% of all students who indicated that they did not want to obtain condoms. Percentages do not sum to 100 due to rounding.

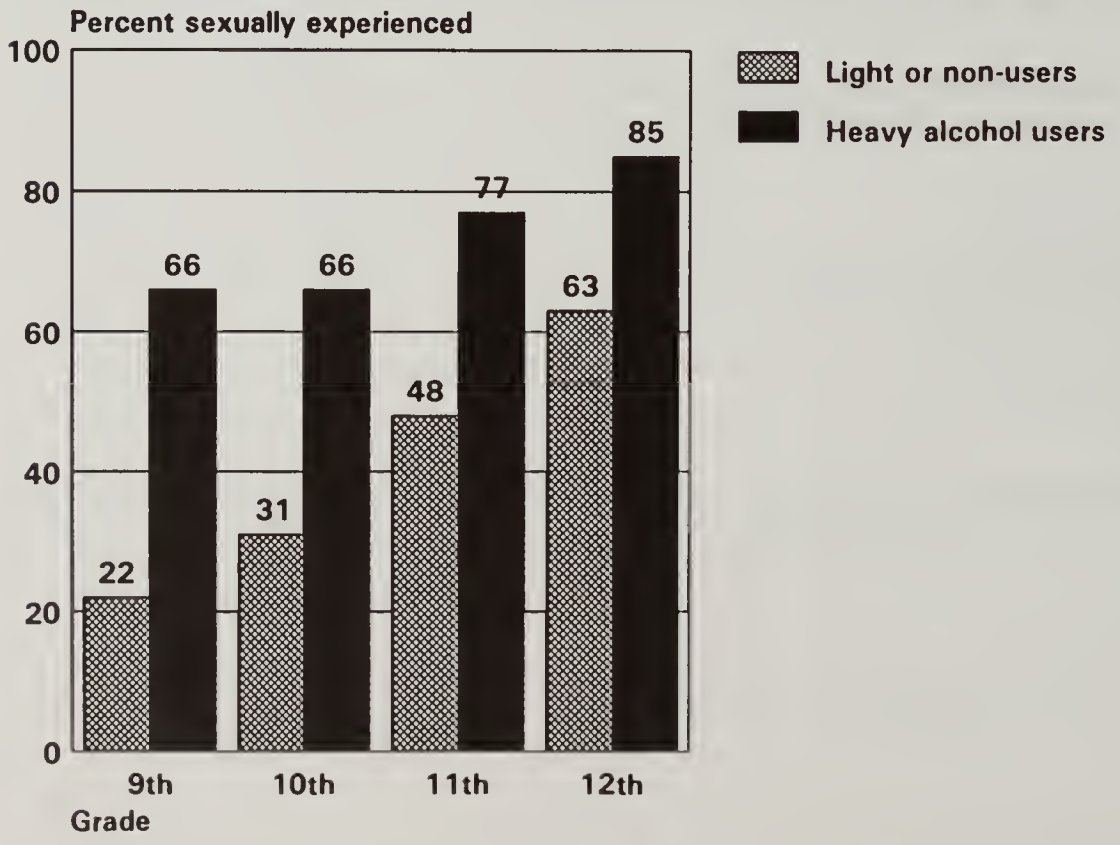
Pregnancy and Sexually Transmitted Disease

- Of all high school students, 6.2 percent report having either been pregnant or having caused a pregnancy one or more times.
- Of sexually experienced students, 9.5 percent report having been pregnant or caused a pregnancy one time; four percent report having been involved in a pregnancy two or more times.
- Seven percent of sexually experienced students report having been told by a doctor or nurse that they had an STD. This may reflect some underreporting of STDs resulting from an absence of symptoms and consequent failure to diagnose and treat the infection, or possibly a lack of communication of disease status to adolescent patients.

Alcohol Use and Sexual Activity

- High school students who drank heavily during the last month were much more likely to have ever had sexual intercourse than students who did not drink heavily.
- The association between sexual experience and alcohol use was strongest among 9th graders; three times as many 9th grade drinkers were sexually experienced as were light or non-drinkers (see Figure 4D).

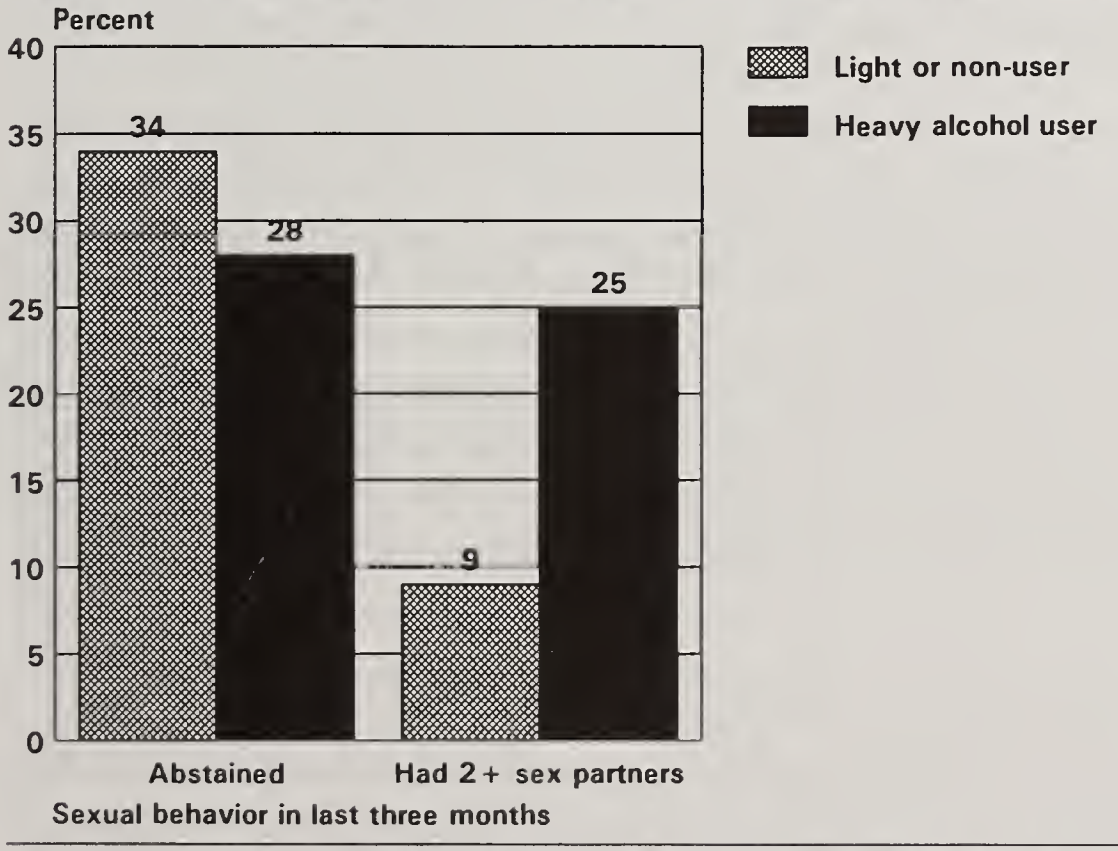
Figure 4D. Students' Sexual Experience by Level of Recent Alcohol Use, by Grade, 1993



Light or non-user = no alcohol use or less than five drinks per occasion. Heavy use = at least five drinks per occasion in the last month. Graph reflects all students in each grade.

- Sexually experienced Massachusetts high school students who drank heavily during the previous month were less likely to have abstained from sexual intercourse for the previous three months (28%) compared to non-drinkers or lighter drinkers (34% abstained during last 3 months) (Figure 4E).
- Sexually experienced students who drank heavily in the last month were more likely to have had two or more sexual partners in the last three months (25%) than sexually experienced students who did not drink heavily (9%) (Figure 4E).

Figure 4E. Recent Sexual Activity by Level of Alcohol Use in the Past 30 Days, 1993.



Light or non-user = no alcohol use or less than five drinks per occasion. Heavy user = at least five drinks per occasion in the last month. Graph reflects those students who have ever had sexual intercourse.

- Alcohol or other drug use is also associated with lower levels of condom use among sexually active students. Only 48 percent of students who used alcohol or drugs before having sexual intercourse used a condom compared to 58 percent of students who did not drink or use drugs the last time. This difference is statistically significant.

Implications and Recommendations

The MYRBS results indicate that a significant number of students enter high school already sexually experienced. Sexuality education that begins in 9th or 10th grade therefore occurs after some students are already sexually active. The survey results also suggest that another 40 percent of students become sexually active during the high school years. School programs that provide multiple opportunities for age-appropriate sexuality education may provide the best access to information for large numbers of young people who become sexually active during their school years.

The survey results also suggest that nearly 30 percent of high school seniors had not had sexual intercourse by the second half of senior year. The data also indicate that not everyone who has ever had intercourse is currently sexually active, reflecting the intermittent nature of some adolescent sexual activity. This diversity of sexual experience within the high school population may have implications for the content and character of sexuality education that aims to meet the needs of all students. Comprehensive sexuality education programs also need to incorporate information, skills, and resources that address the issue of involuntary sexual activity.

These data may also have implications regarding access to reproductive and sexual health care services for adolescents. Many of the approximately 77,000 currently sexually active high school students statewide are at risk for pregnancy and STDs, including HIV infection. These young people need affordable, convenient, and confidential reproductive health and counseling services.

The survey suggests that in Massachusetts, condoms are used by approximately half of sexually active high school students for contraceptive and/or disease prevention purposes, and that condom use in this population has increased only slightly, if at all, in the last three years. The most desirable sources of condoms appear to be the most anonymous ones: pharmacies and convenience stores, or vending machines both on and off school property. The demand for condoms and students' preferences for obtaining them may be important considerations as school districts consider policies and programs to make condoms more available to their secondary school students.

Last of all, the association between heavy alcohol use and early and recent sexual activity suggests that sexuality education programs might be more effective in reducing early and risky sexual behaviors if they are coordinated with and integrated into alcohol abuse prevention education, particularly at the earlier grade levels.

5 AIDS/HIV PREVENTION EDUCATION

Introduction

The Massachusetts Board of Education recommends that schools provide AIDS/HIV prevention education within the context of comprehensive school health education programs. The Board recommends that AIDS/HIV education include information about sexually transmitted diseases and the value of both sexual abstinence and the use of condoms as disease prevention methods. Research evidence shows that comprehensive sexuality education programs which instruct students both on how to postpone sexual activity and on the correct use of condoms and other contraceptives can be successful in delaying sexual activity and increasing the use of contraceptives among students who become sexually active.[22,23,24] The Board policy also recommends that school districts consider making condoms available to their secondary school students. Recent research shows that condoms are highly effective at preventing the sexual transmission of HIV when used correctly and consistently.[25]

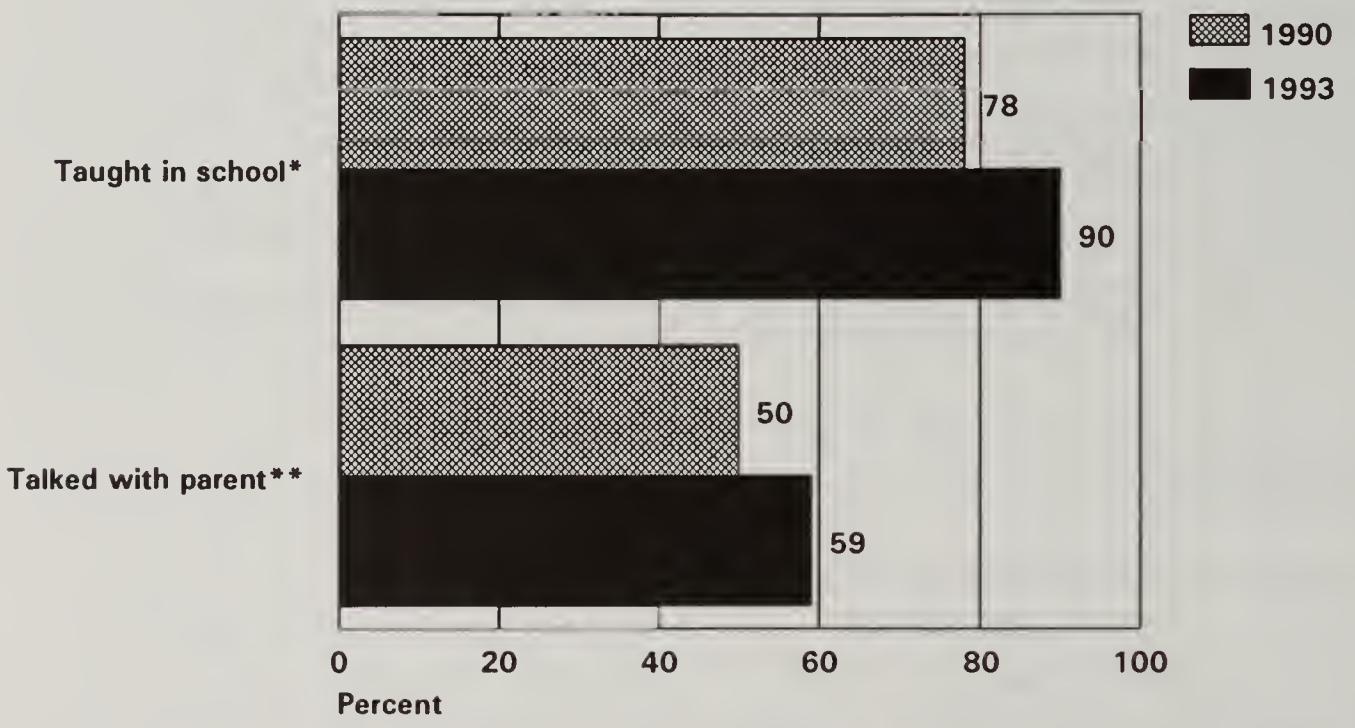
The Massachusetts Youth Risk Behavior Survey asked students to report whether they had received AIDS/HIV education in school, about specific components of this education, and whether they had spoken about AIDS/HIV with their parents or with other adults in their family.

Summary of Results

Between 1990 and 1993 there has been a significant increase in the percentage of high school students reporting having received AIDS/HIV education in school, and in the percentage reporting having spoken with their parents about AIDS/HIV. Approximately one half of Massachusetts high school students report having received a presentation by a person living with AIDS/HIV, and half report having been taught in school how to use a condom. Most high school students (90%) have received some AIDS/HIV education in school. Students who reported never having received AIDS/HIV education were significantly more likely to have ever had sexual intercourse, and were less likely to have used a condom or spoken with their parents or other adult family members about AIDS, compared to students who had received AIDS/HIV education.

- The vast majority (90%) of Massachusetts high school students report having been taught about AIDS/HIV in school, compared to 78 percent in 1990 (Figure 5A).
- In 1993, 59 percent of students report having spoken about AIDS/HIV with their parents or other adults in their families, compared to 50 percent in 1990 (Figure 5A).
- One half (50%) of high school students report having received a presentation in school by a person with AIDS or HIV infection.
- Almost one half (47%) of students report having received instruction in school on the use of a condom (this may or may not include condom demonstrations).
- There was little variation by grade or gender in having received AIDS/HIV education in school; however, Asian/Pacific Islander students were significantly less likely to have received this education (78%) compared to other racial/ethnic groups (89%-91%).

Figure 5A. AIDS/HIV Education and Communication with Parents about AIDS/HIV, 1990 and 1993.

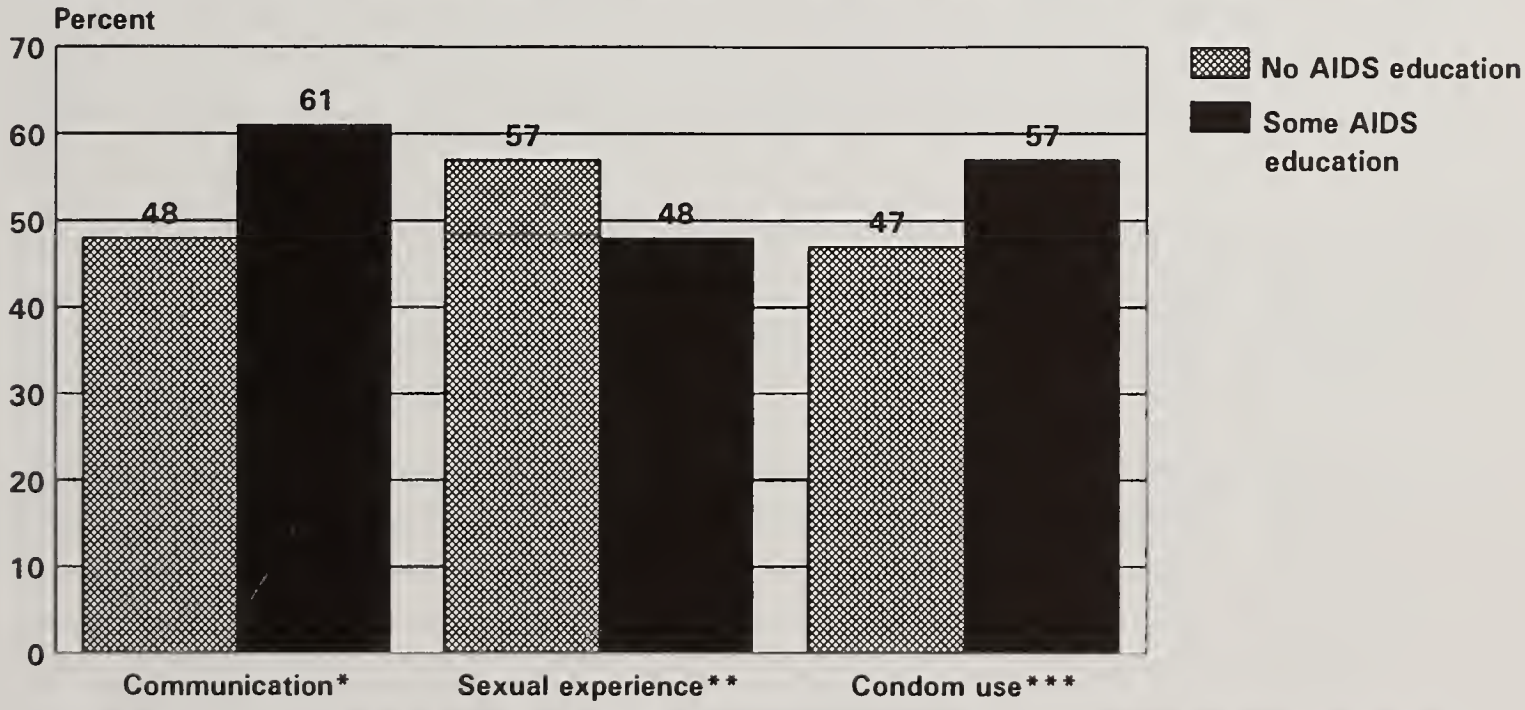


* Taught in school about AIDS/HIV. ** Talked with a parent or other adult in family about AIDS/HIV. Changes are statistically significant.

- Students who have received AIDS/HIV education, a presentation by a person with AIDS/HIV, and/or instruction on the use of a condom are significantly more likely to report having spoken about AIDS/HIV with their parents or other adults in their family than students reporting not having received this education.
- Students who report not having received AIDS/HIV education are significantly more likely to report ever having had sexual intercourse (Figure 5B).

- Sexually experienced students who report never having received AIDS/HIV education in school are significantly less likely to report using a condom the last time they had sexual intercourse than students who have received AIDS/HIV education (Figure 5B).
- The relationship between having received AIDS/HIV education and condom use was particularly strong among sexually active 9th and 10th graders; condom use among those having received AIDS/HIV education was 50 percent higher (62%) than condom use among 9th and 10th grade students who had not received AIDS/HIV education (40%).

Figure 5B. Association between AIDS/HIV Prevention Education and Students' Behaviors, 1993.



* Talked with parents or other adults in family about AIDS/HIV. ** Ever had sexual intercourse. *** Condom use at last intercourse, sexually experienced students only. Differences are statistically significant.

Implications and Recommendations

The significant increase in students reporting AIDS/HIV education in school points to the success of multiple efforts by health teachers, schools, state and community agencies, and others to improve and expand AIDS/HIV education in Massachusetts schools. This increase in education may be responsible for the increase in family communication around AIDS/HIV.

The Massachusetts Department of Education AIDS/HIV Program supports several community-based agencies across the state that provide educational programs involving persons living with AIDS/HIV. The fact that one half of Massachusetts high school students have been exposed to these sorts of programs indicates substantial success in reaching students in schools across the state. At the same time, the fact that only 50

percent of students have received instruction on the use of a condom indicates that the recommendations in the Board of Education's Policy on AIDS/HIV Prevention Education have been less than fully adopted.

Some opponents of AIDS/HIV education claim that such education increases sexual activity among young people. These survey findings suggest the contrary; in Massachusetts, AIDS/HIV education is associated with *lower* levels of sexual activity, and *higher* rates of condom use among those currently having sexual intercourse. While these findings are not proof of a causal relationship, they may provide guidance to local communities working to determine the nature and scope of local school-based AIDS/HIV prevention education.

6 INJURY-RELATED BEHAVIORS

Introduction

The Massachusetts Youth Risk Behavior Survey (MYRBS) measures violence-related behavior such as weapon carrying and physical fighting. In the United States, homicide is the second leading cause of death among youth aged 15-24 and is the leading cause of death among black youth.[26] The vast majority of homicide victims in the U.S. are killed with a weapon such as a gun, knife, or club. Physical fighting often precedes fatal violence among young persons.[27]

The MYRBS also measures attempted suicide and the seriousness of those attempts. Suicide is the third leading cause of death among persons aged 15 to 24,[26] and the suicide rate in this age group has tripled since 1950.[10] Firearms are involved in 60 percent of adolescent and young adult suicides in the U.S..[10]

The MYRBS also measures traffic safety risk behaviors such as drinking and driving, seatbelt use, and the use of motorcycle and bicycle helmets. Motor vehicle crash injuries are the leading cause of death of persons aged 15 to 24 in the U.S..[28] More than half of these crashes involve alcohol use. Alcohol-related traffic crashes, when not fatal, cause serious injury and permanent disability.[10] Seat belt use is estimated to reduce motor vehicle fatalities by 40 to 50 percent and serious injuries by 45 to 55 percent.[29] In 1991 only 56 percent of Massachusetts adults reported regularly using seat belts.[18] Unhelmeted motorcyclists are three times more likely and unhelmeted bicyclists are six and one half times more likely to incur a head injury than helmeted riders.[30,31]

National health objectives for the year 2000 include reducing weapon carrying by adolescents aged 14 to 17, reducing physical fighting in this age group, and reducing the incidence of injurious suicide attempts among adolescents. Other national health objectives are to reduce the deaths of adolescents caused by motor vehicle crashes and alcohol-related motor vehicle crashes, to increase the use of seatbelts, and to increase the use of motorcycle and bicycle helmets.

Summary of Results

Since 1990, there was no change in reported weapon carrying, a decrease in reported drinking and driving, and an increase in reported seatbelt use among Massachusetts public high school students. Twenty percent of Massachusetts high school students reported carrying some kind of weapon in the last month and 10 percent reported carrying a weapon on school property. This level of weapon carrying cannot be attributed to Boston students since the estimates are the same when Boston students are excluded from the analysis. Significantly more adolescent men than women reported carrying weapons and being involved in physical fighting. Younger students were more likely than older students to report being threatened or injured in a fight or at school, and to have their property damaged or stolen at school. Black and Hispanic students were more likely to feel unsafe at school or on the way to school and were more likely to report recent weapon carrying than were white students.

Between 1990 and 1993 there has been a significant increase in reported suicide plans and attempts among Massachusetts high school students. It is estimated that over 23,000 Massachusetts adolescents attempted suicide in the 12 months preceding the survey. More adolescent women than men reported having considered and/or planned how to commit suicide. Frequent alcohol use was associated with increased levels of physical fighting and suicidal behaviors. One third of Massachusetts students rode in a car with a driver who had been drinking alcohol in the last month.

Weapon Carrying

- One in five Massachusetts high school students (20%) reported carrying a weapon of some kind (such as a gun, knife, or club) somewhere during the last 30 days, (Table 6); this is slightly lower than the national rate of 26% measured in 1991,[31] and not significantly different from the 16% rate for Massachusetts in 1990.
- One in ten (10%) students reported carrying some kind of weapon *on school property* in the last 30 days; no comparable information for 1990 is available.
- Six percent (6%) of high school students reported carrying a gun (anywhere) during the last 30 days; this translates into approximately 14,500 students statewide.
- All MYRBS measures of weapon carrying remain the same whether or not Boston students are included in the analysis.
- Significantly more adolescent men than women reported carrying a weapon (Table 6).
- More black (16%) and Hispanic (14%) students than white students (5%) reported carrying some kind of weapon during the past 30 days.

Table 6. Violence-Related Behavior and Experience of Massachusetts High School Students, 1993.

In the 30 days prior to the survey:	*All students*	*Men*	*Women*
Carried some kind of weapon*	20%	32%	8%
Carried some kind of weapon on school property	10%	15%	5%
Carried a gun (anywhere)	6%	11%	1%
Did not go to school because felt unsafe**	5%	6%	5%
In the 12 months prior to the survey:			
Was threatened or injured with a weapon on school property	9%	12%	6%
Had their belongings stolen or intentionally damaged at school	28%	31%	24%
Was in a physical fight (anywhere)	42%	51%	32%
Was in a physical fight on school property	15%	22%	8%
Injured in a physical fight and needed treatment by a doctor or nurse	4%	5%	3%

* Weapons include gun, knife, club, or other weapons. ** Felt unsafe at school or on the way to school.

Threats and Physical Fighting

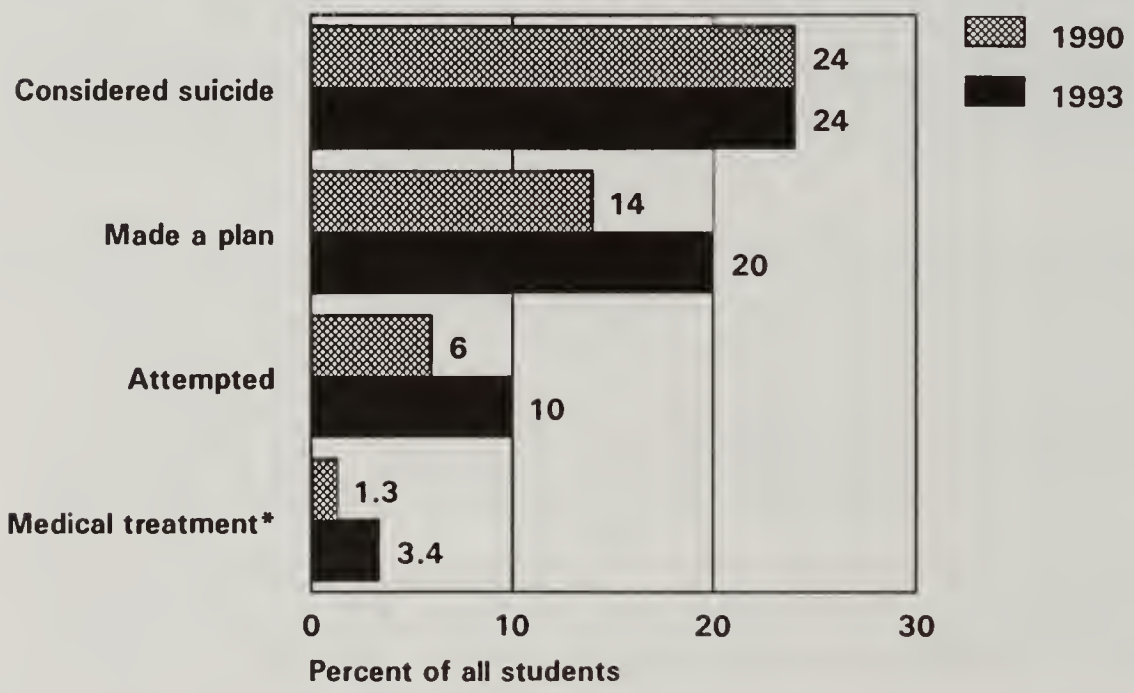
- One in twenty students (5%) reported not going to school one or more times in the last month because they did not feel safe *at school or on the way to school* (Table 6).
- Significantly more black (10%) and Hispanic (13%) students than white students (4%) reported not going to school at some point during the last month because they did not feel safe.
- Nearly one in ten (9%) students reported being threatened or injured with a weapon *on school property* in the last year; this translates into approximately 20,700 high school students statewide.
- Over one quarter of students (28%) reported having their property (such as books, clothing or their car) stolen or deliberately damaged *on school property* in the last year.
- 9th graders were significantly more likely than 12th graders to report being threatened or injured with a weapon at school (12% of 9th graders vs. 7% of 12th graders) or having their property deliberately damaged or stolen at school (31% vs. 24%, respectively).
- Over 40 percent (42%) of students reported being in a physical fight in the last year; this is the same as the national rate measured in 1991.[32]
- Fifteen percent (15%) of students reports having been in a physical fight *on school property* during the last year.
- Significantly more adolescent men than women reported being threatened or injured at school or in any kind of physical fight in the last 12 months (Table 6).

- Four percent (4%) of students reported being injured in a physical fight in the last year to the extent that they needed treatment from a doctor or nurse.
- Students who reported drinking alcohol frequently in the last month (6 or more times) were significantly more likely to report being in a physical fight and being injured in a physical fight than were less frequent drinkers.

Suicidal Behaviors

- One quarter of all high school students (24%) report having seriously considered committing suicide in the last year; this is slightly lower than the national rate of 29 percent for 1991[32] and reflects no change within Massachusetts from 1990 levels.
- In 1993, significantly more students reported having planned how they would commit suicide and having attempted suicide in the past year compared to 1990 (Figure 6A); one in five students in 1993 said they had made a plan to commit suicide in the past year.

Figure 6A. Suicidal Behaviors* Among Massachusetts High School Students, 1990 and 1993.

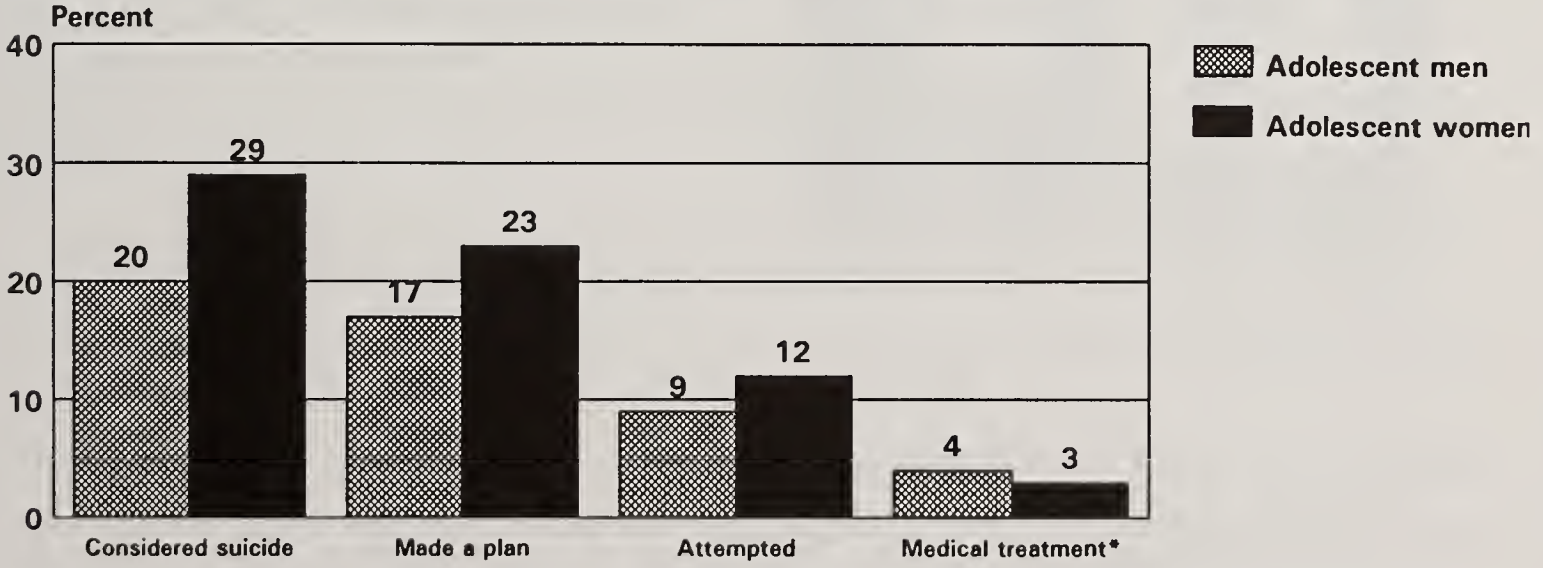


* Including seriously considering suicide, making a plan to commit suicide, attempting suicide, and receiving medical treatment for an injury or illness resulting from a suicide attempt. Changes from 1990 to 1993 are statistically significant.

- Ten percent of Massachusetts public high school students reported having attempted suicide in the past year (23,690 students) and 3.4 percent reported having received medical treatment for their suicide attempt (7,820 students).

- Reported suicide attempts did not significantly differ between white, black, and Hispanic students; however, students reporting an "other" racial category (including Asian and Native American) were almost twice as likely to report attempting suicide as white students (18% versus 9%) and nearly three times as likely to report suicide attempts requiring medical treatment (7.9% v. 2.8%). These differences are statistically significant.
- Female students were significantly more likely than male students to report having considered and planned how to commit suicide in the past year (Figure 6B); gender differences in suicide attempts were not statistically significant.
- Students who reported frequent alcohol use (at least 6 occasions in the last month) were more likely than less frequent drinkers to report all measured types of suicidal behaviors, including injuries resulting from suicide attempts. For example: 36% of frequent heavy drinkers made a plan to commit suicide, compared to 16% of less frequent drinkers; 23% of frequent heavy drinkers attempted suicide and 12% were injured in a suicide attempt in the last year, compared to 8% and 2%, respectively, for less frequent drinkers.

Figure 6B. Gender Differences* in Suicidal Behaviors Among High School Students, 1993.**



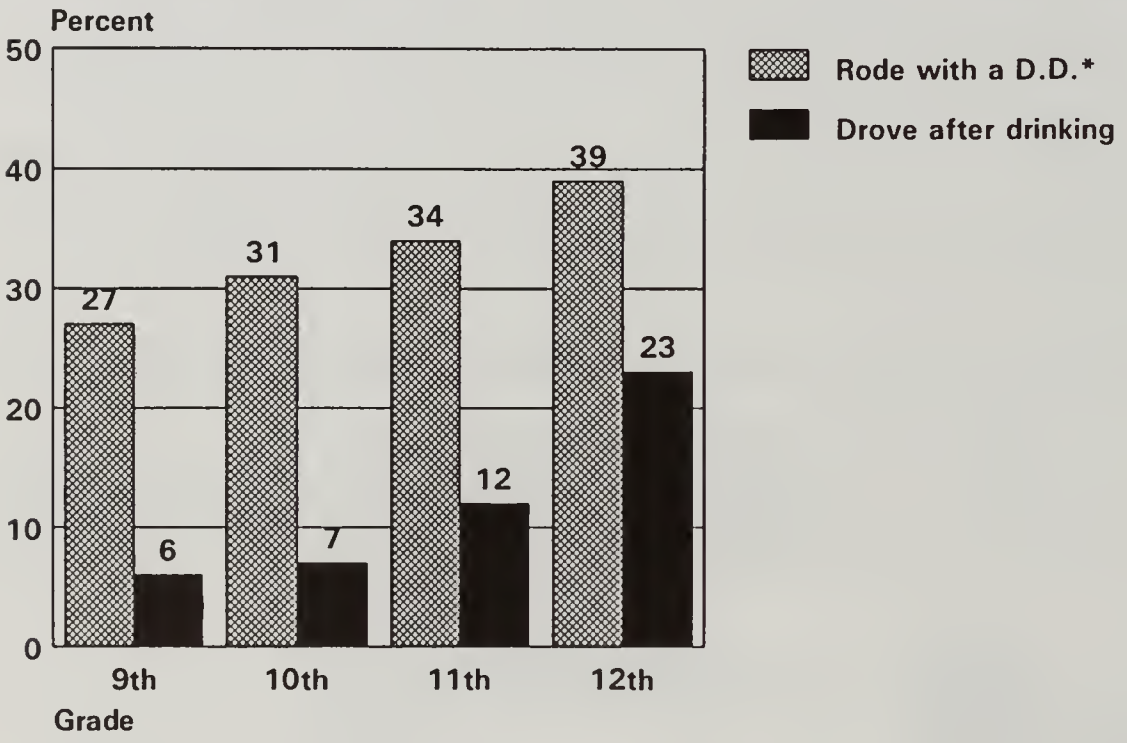
* Differences are statistically significant for "considered suicide" and "made a plan." ** Suicidal behaviors include seriously considering suicide, making a plan to commit suicide, attempting suicide, and receiving medical treatment for a suicide attempt.

Drinking and Driving

- One third (33%) of high school students reported being a passenger in a car in the last month with a driver who had been drinking alcohol; this increases significantly between 9th and 12th grades (Figure 6C).
- Over ten percent (12%) of students report having driven a car in the last month after using alcohol (grade differences shown in Figure 6C).

- Almost twice as many men (15%) as women (8%) reported driving after drinking in the last month; however, there were no gender differences in reported riding with a driver who had been drinking. There were no significant racial/ethnic differences in riding with a drinking driver or driving after drinking alcohol.
- While nearly one fourth of 12th graders (23%) reported driving after drinking, this represents a significant decrease from 1990, when 32% of seniors reported this behavior; smaller declines in the other grades were not statistically significant.

Figure 6C. Drinking and Driving During the Month Prior to the Survey, by Grade, 1993



* Driver who had been drinking alcohol.

Seat Belt Use and Other Traffic Safety Behaviors

- In 1993, 17 percent of Massachusetts high school students reported always wearing a seat belt while riding in a car driven by someone else; this is considerably lower than the national rate for 1991 of 28 percent.[32]
- Black and Hispanic students were significantly less likely than white students to report always wearing a seat belt (11% and 7% versus 19%, respectively).
- The proportion of students wearing a seat belt always or most of the time increased from 28% in 1990 to 39% in 1993; this is paralleled by a decrease in students never or rarely wearing a seat belt from 52% to 41%.[33]

- Almost one fourth of students (23%) rode a motorcycle in the last year; of motorcycle riders, 59 percent always wore a helmet.
- Over three fourths of students (78%) rode a bicycle in the last year, but less than two percent (1.7%) of students wore a helmet while riding a bicycle.

Implications and Recommendations

The survey results indicate that violence patterns among high school students in Massachusetts do not significantly differ whether Boston students are included in the analysis or not. This suggests, as do other recent events, that all kinds of communities need to address the issues surrounding youth violence.

The survey results suggest that school safety issues may be a significant factor in school non-attendance rates, particularly among black and Hispanic students. In addition, younger students appear to be at higher risk of threats to their person or property than are older students. School policies and procedures are necessary to create a safe learning environment for all students.

The survey findings also suggest an increase in suicide plans and attempts among Massachusetts high school students in recent years. While rates may vary across communities, school guidance, counseling and health services staff need to be aware of this increase as they plan for and coordinate improved services for adolescents.

On the more encouraging side, the results suggest decreased drinking and driving among high school seniors (the group most at risk for drinking and driving), and increased seat belt use among all students. We believe comprehensive health education programs are contributing to these positive changes in adolescents' behavior.

We believe violence and injury prevention education is most effectively delivered within the context of comprehensive health education and human services programs. A holistic approach to violence and injury prevention includes a focus on skills development in addition to accurate and up-to-date information.

7 DIETARY BEHAVIORS AND PHYSICAL ACTIVITY

Introduction

The Massachusetts Youth Risk Behavior Survey (MYRBS) measures bodyweight self-perception, efforts to modify bodyweight, food choices, and participation in physical activity. Obesity among adolescents is increasing nationwide and may persist into adulthood, increasing later risk for chronic conditions such as diabetes, heart disease, high blood pressure, stroke, and some types of cancer.[34,35] Obesity in adolescence is related to psychological stress, depression, problems in family relations and poor school performance.[36,37] At the same time, overemphasis on thinness during adolescence may contribute to eating disorders such as anorexia nervosa and bulimia.[34] Adolescent females are particularly at risk for these two health problems.[38]

Regarding food choices, American consume more than 36 percent of their total calories from fat. High fat foods are often consumed at the expense of foods high in complex carbohydrates and dietary fiber, which are considered more conducive to health.[35] Regular physical activity can assist in the prevention and management of coronary heart disease, hypertension, diabetes, osteoporosis, and obesity.[39] Regular physical activity increases life expectancy and is associated with good mental health and self-esteem.[40,41] School physical education programs can have a significant positive effect on the health-related fitness of children.[42,43]

National health objectives for the year 2000 include reducing obesity among adolescents and adults, increasing the use of sound dietary practices and physical activities to attain and maintain an appropriate body weight, reducing dietary fat intake and increasing the consumption of complex carbohydrates and fiber-containing foods, increasing the proportion of adolescents and adults who engage in regular physical activity and increasing the participation of school children in daily physical education classes.

Summary of Results

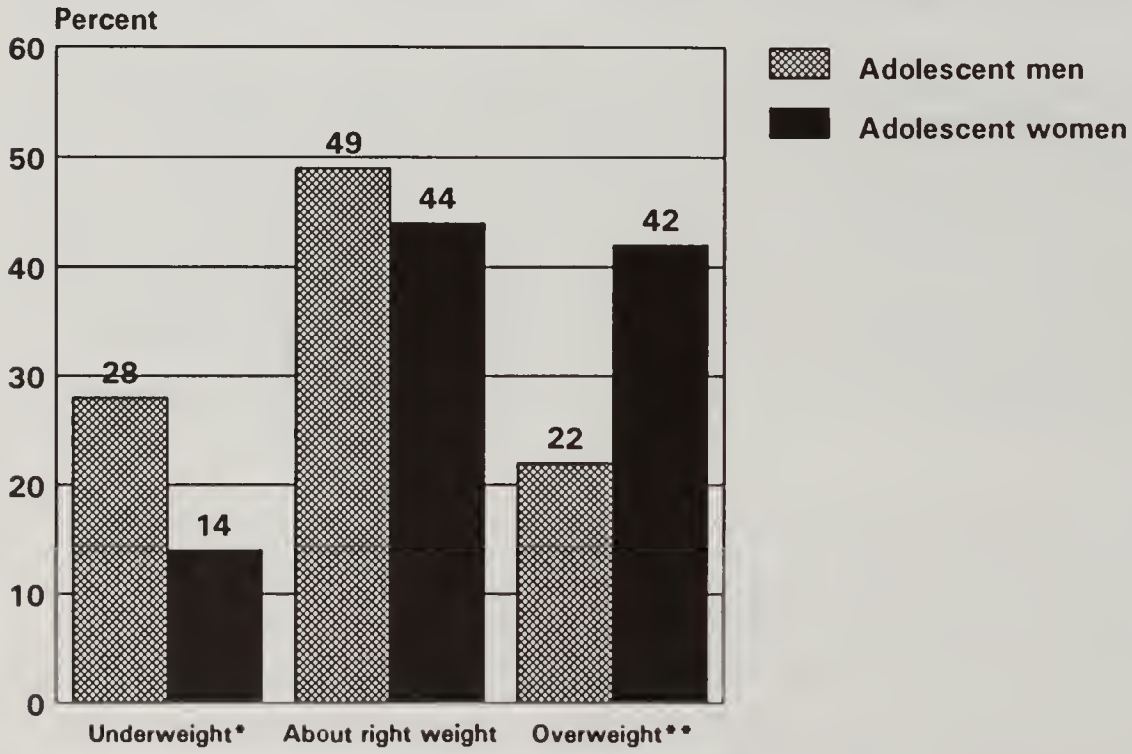
Close to half of Massachusetts high school students think of themselves as the right weight, while two out of five are trying to lose weight. While most students trying to lose weight reported using diet and/or exercise, one in 20 students reported using diet pills or making themselves vomit. In terms of physical exercise, two thirds of high school students had engaged in regular physical activity. While 80 percent had been to a physical education

class within the last week, only 60 percent reported actually exercising for more than 20 minutes in the average physical education class. One half of high school students reported playing on a school sports team within the past year. Fewer adolescent women than men engage in regular physical activity, muscle-strengthening exercise, or non-school-based sports teams. Significantly more white students than black or Hispanic students reported engaging in regular physical activity or playing on sports teams organized by their schools.

Bodyweight Self-Perceptions

- Less than one half of Massachusetts high school students (47%) thought of themselves as about the right weight.
- Fewer women than men considered themselves about the right weight and more women consider themselves overweight than do men (see Figure 7A).

Figure 7A. Bodyweight Self-Perceptions of Massachusetts High School Students, by Gender, 1993.

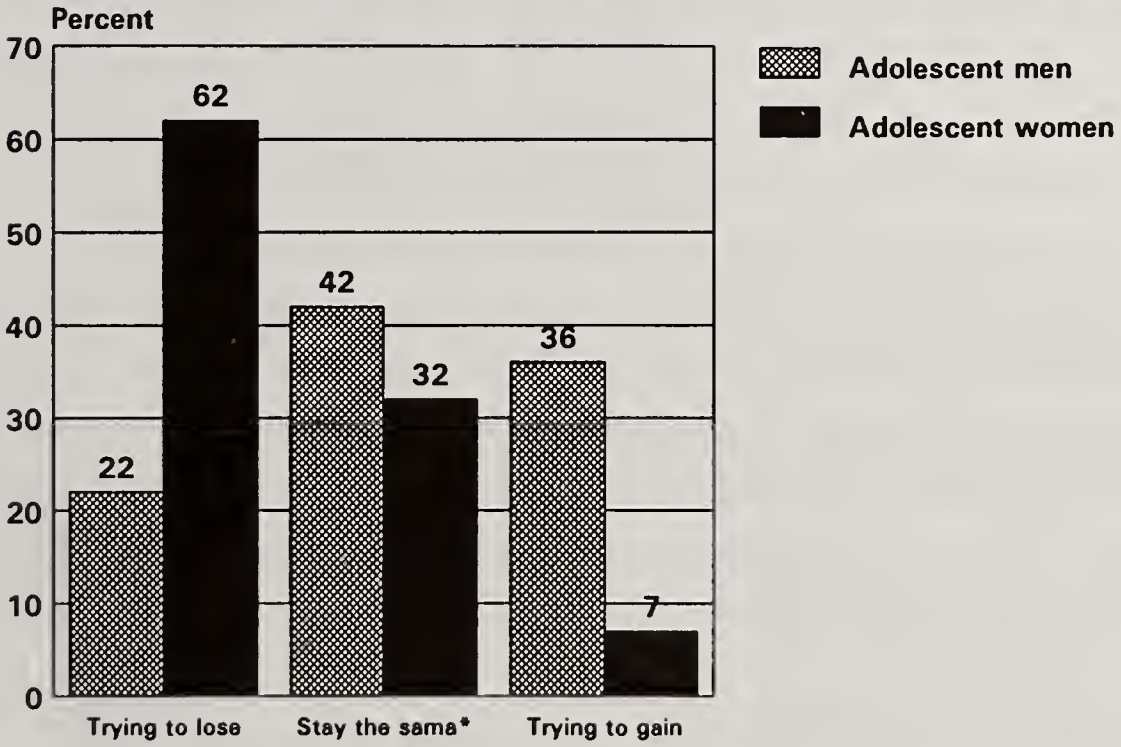


* Includes slightly and very underweight. ** Includes slightly and very overweight.

- Black students were significantly more likely than white students to consider themselves about the right weight (55% versus 46%); other comparisons by race/ethnicity were nonsignificant.
- Over 40 percent of students (41%) reported trying to lose weight; this is significantly higher than in 1990, when 33 percent of students reported currently trying to lose weight.

- The increase between 1990 and 1993 in students trying to lose weight is almost entirely attributable to an increase among adolescent women. In 1993, almost three times as many adolescent women as men (62% versus 22%) reported currently trying to lost weight (Figure 7B).
- Among adolescent women, white students were more likely than black or Hispanic students to report trying to lose weight (64% versus 41% and 49%, respectively).

Figure 7B. High School Students' Efforts to Gain or Lose Weight, by Gender, 1993.



* Includes trying to stay the same weight or not trying to do anything about bodyweight.

Dietary Behaviors

- Nearly half of high school students (47%) report using dieting, exercise or both to either lose weight or keep from gaining weight in the last week.
- One in twenty students (5%) reported using diet pills or making themselves vomit in the last week in order to lose weight or not gain weight; this represents six percent of women and three percent of men.
- Students' food choices are presented in Table 7.

Table 7. Types of Food Eaten by High School Students on the Day Before the Survey, 1993.

Food type	*Percent of students*	*Food type*	*Percent of students*
Fruit juice	71%	Hamburger, hotdogs, or sausage	33%
Fruit	60%	French fries or potato chips	50%
Green salad	28%	Cookies, doughnuts, pie, or cake	59%
Cooked vegetables	49%		

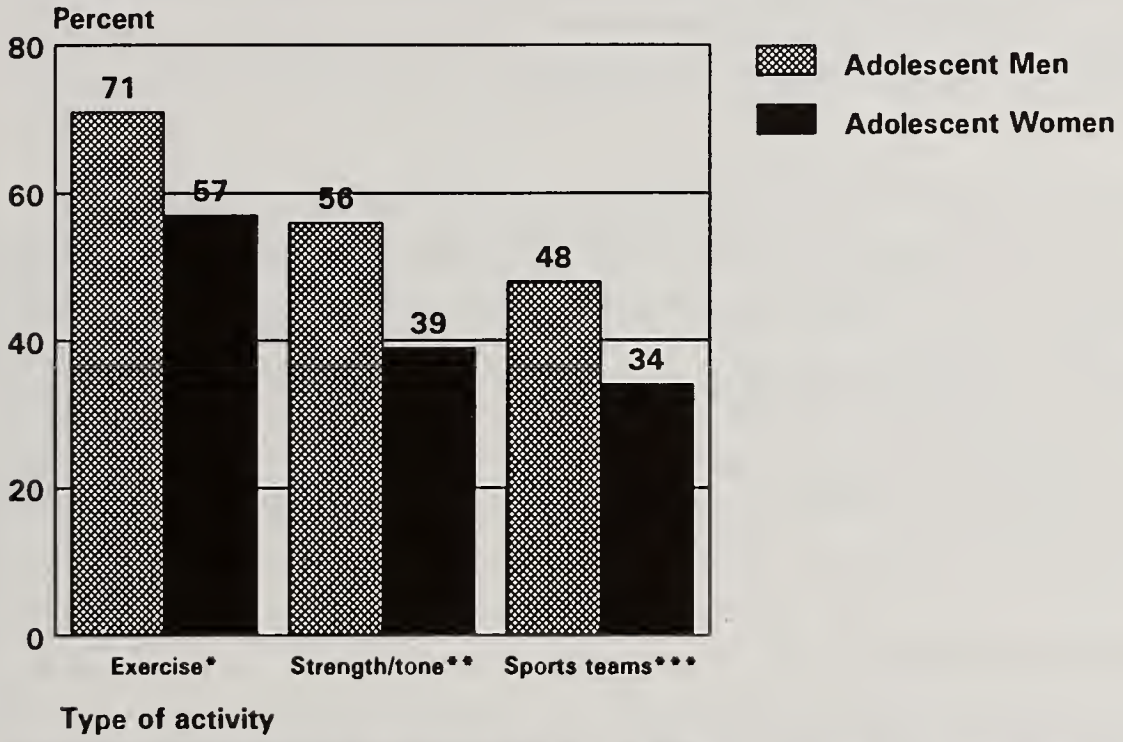
Physical Activity

- Nearly two thirds (65%) of students report having exercised or participated in sports for at least 20 minutes on at least three of the last seven days.
- Significantly more adolescent men (71%) than women (57%) exercised or participated in sports for at least 20 minutes on three or more of the last seven days (see Figure 7C).
- White students were more likely than Hispanic or "Other" students to report having exercised or participated in sports for at least three of the last seven days (67% versus 50% and 54%, respectively) (see Figure 7D).
- Almost half of students (49%) report having engaged in stretching exercises on at least three of the last seven days (figures are similar for men and women).
- About half of students (47%) report doing exercises to strengthen or tone muscles on at least three of the last seven days; significantly more men (56%) than women (39%) report this form of physical activity.
- Significantly more white than black or Hispanic students reported doing stretching exercises or muscle-strengthening exercises on at least three of the last seven days.
- Almost two fifths of students (39%) report having walked or bicycled for at least 30 minutes on at least three of the last seven days (figures are similar for men and women; no differences exist by race/ethnicity).

Physical Education and Sports Teams

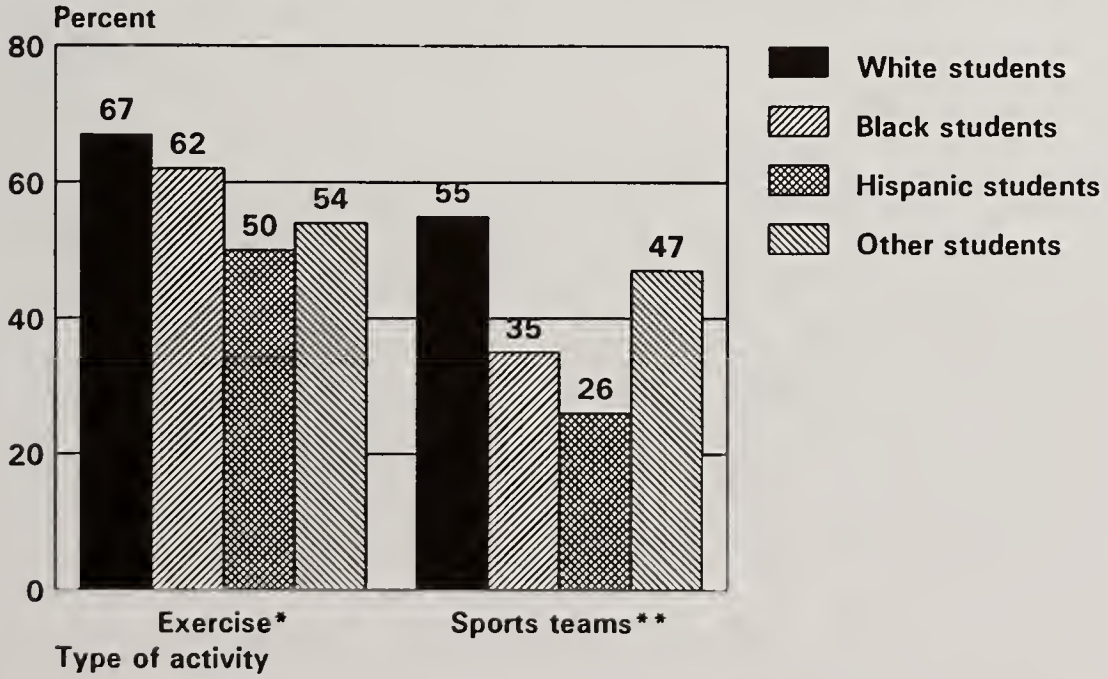
- Four fifths (80%) of students report going to at least one physical education class in the average school week (figures are the same for men and women and across race/ethnicities).
- Less than three fifths (58%) of students report spending more than 20 minutes actually exercising or playing sports in the average physical education class; the difference between men (63%) and women (54%) is only weakly significant.

Figure 7C. Participation in Physical Activity and Sports Teams, by Gender, 1993.



* Exercise three or more days per week. ** Exercise to strengthen or tone muscles. *** Teams organized outside of school.

Figure 7D. Participation in Physical Activity and Sports Teams, by Race/Ethnicity, 1993.



* Exercise that made students sweat and breathe hard for at least 20 minutes, 3 or more days/week. ** Sports team organized by school.

- One half (51%) of students report playing on one or more sports teams (other than physical education) run by their school within the last 12 months; while more men than women report playing on a school-based sports team (55% versus 47%), this difference is not statistically significant.
- Significantly more white students (55%) than black (35%) or Hispanic students (26%) reported playing on a school-based sports team in the past year; this difference was more pronounced among female than among male high school students.
- Two fifths (41%) report playing on a sports team run by organizations outside their school during the last 12 months.
- Significantly more adolescent men (48%) than women (34%) reported playing on a sports team run outside of school during the last 12 months.

Implications and Recommendations

A significant proportion of Massachusetts adolescents consider themselves either underweight or overweight. Among adolescent women, more students are trying to lose weight than actually consider themselves overweight. Healthy food choices and nutrition and bodyweight issues can be taught within the context of comprehensive school health education and integrated with efforts to improve school food choices. In addition, schools may want to consider providing assistance to overweight students needing to lose weight to ensure that they do this in a healthy way.

National goals for the year 2000 include increasing to 75 percent the proportion of adolescents who exercise for at least 20 minutes 3 or more days per week. While neither adolescent women or men in Massachusetts have met this goal, women are significantly further away from this goal than are men. Hispanic and other minority students also appear far from the 75 percent goal. Expanded efforts at the school and community level may be necessary to increase the overall level of regular physical activity among Massachusetts high school students and, in particular, to increase minority students' and adolescent women's access to and participation in athletics and other physical activity.

8 CONCLUSIONS

Several important themes emerge from the 1993 survey results, all of which have implications for the planning, development, improvement, and evaluation of programs aimed at protecting and enhancing adolescent health. First of all, while the data were collected from 9th through 12th graders, they clearly indicate that many of the risk behaviors of concern began well before students entered high school. Examples of this are early initiation of cigarette use and sexual activity, the latter having increased significantly since 1990. One implication is that prevention education may be most effective if begun in the earlier grades, before the behaviors are initiated. This requires the development of curricula that are appropriate for younger audiences and that provide the knowledge and skills upon which later education may build. Earlier health education also requires that elementary and middle school staff be trained to provide education on important health topics so that they are comfortable and confident delivering the new material. To more accurately estimate the prevalence of various health risk behaviors in the earlier grades, the 1995 Massachusetts Youth Risk Behavior Survey will include 7th and 8th graders in addition to high school students.

The linkages between various risk behaviors are another important finding. In particular, these results indicate significant associations between alcohol use and tobacco use, between alcohol use, sexual behavior and condom use, between alcohol use and violence, and between alcohol use and suicidal behaviors. Other linkages may also exist but were not explored. A primary implication of this finding is that programs designed to prevent or manage these risk behaviors may be most effective if they address the associated behaviors as well. In particular, health education courses may want to address the linkages between tobacco and alcohol use and other behaviors. Likewise, tobacco cessation services, alcohol addiction services, and family planning programs may need to understand the constellation of behaviors associated with the behavior that is their primary concern.

While the prevalence of many risk behaviors has not changed appreciably since 1990, the data have permitted, for the first time since 1990, estimation of the numbers of adolescents currently engaged in various risk behaviors. The data suggest that a substantial proportion of the high school population, rather than a small minority, is engaged in high risk behaviors. These students are in need of guidance, counseling, and physical health services that address these health needs. We believe comprehensive school health programs can increase students' access to such services through expanded on-site health services and

through improved linkages with local and regional adolescent health services. Attention to convenience, low cost, and confidentiality will be important to the success of improved adolescent health services programs. Future research that explores adolescents' preferences, needs, and experience with mental and physical health care services will be critical for designing and implementing effective programs for this population.

The Youth Risk Behavior Survey primarily focuses on behaviors, not on the effectiveness of programs to influence these behaviors. However, school and community leaders are faced with the challenge of choosing and developing effective programs to prevent and reduce the prevalence of risky and unhealthy practices in their adolescent populations. The survey results suggest that alcohol prevention, traffic safety education, and AIDS/HIV prevention education programs may be having some success with Massachusetts high school students. While this report is not designed to provide comprehensive assistance in program planning, a few recommendations for program design may be helpful. To be most effective, comprehensive school health programs should:

- be sustained from Kindergarten through grade 12;
- address the needs of a student body with diverse experiences and backgrounds, culturally, socio-economically, and with respect to specific risk behaviors;
- include all health-related topic areas and address the linkages between them;
- be integrated across the academic curriculum and not limited to singular health courses;
- include active linkages with counseling and guidance services and with confidential, low cost and convenient physical and mental health services;
- include opportunities for students to develop positive relationships with adults and with their peers, and which reinforce responsible decision-making and positive behavior change; and
- provide a healthy, safe and supportive school environment for all students and staff.

Finally, while schools can be important places to encourage and model healthy adult behaviors and relationships, schools alone cannot protect the health of the school-age population. Schools will need the support and collaboration of parents, community groups, businesses, religious leaders and other organizations to provide a network of educational and support services for Massachusetts children and adolescents.

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3. The Boston Public Schools (BPS) conducts its own YRBS; before 1993 this was done entirely separately from the state survey and Boston schools were therefore not included in the state sample. In 1993 a collaborative effort permitted the inclusion of Boston schools in the state sample for the first time.
4. The 1990 YRBS school sample did not include Boston schools; therefore, comparisons between 1990 and 1993 are made using 1993 data from which Boston students are analytically excluded.
5. Confidence intervals provide a range within which the true level of the behavior is 95% likely to be. In these data the range is commonly plus or minus 3 percentage points but varies from +/- 1 to +/- 5 percentage points. The accuracy of the estimates is determined by the absolute level of the estimate, the response rate on the particular question, and the number of students in the categories being examined.
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APPENDIX A

The 1993 Massachusetts Youth Risk Behavior Survey Questionnaire

English version

A copy of the Spanish version is available upon request from the Massachusetts Department of Education AIDS/HIV Program, 617-388-3300, ext. 386

The Commonwealth of Massachusetts
Department of Education

350 Main Street, Malden, Massachusetts 02148-5023

Telephone: (617) 388-3300
TTY: N.E.T. Relay 1-800-439-2370

1993 YOUTH RISK BEHAVIOR SURVEY

This survey is about health behavior. It has been developed so you can tell us what *you* do that may affect your health. The information you give will be used to develop better health education programs for young people like yourself.

DO NOT write your name on this survey *or* the answer sheet. The answers you give will be kept *private*. No one will know what you write. Answer the questions based on what you really do.

Completing the survey is voluntary. Whether or not you answer the questions will not affect your grade in this class.

The questions that ask about your background will only be used to describe the types of students completing this survey. The information will not be used to find out your name. *No names will ever be reported.*

Place all your answers on the answer sheet. Fill in the circles completely. Make sure to answer every question. When you are finished, follow the instructions of the person giving you the survey.

THANK YOU VERY MUCH FOR YOUR HELP

INSTRUCTIONS: Read each question carefully. Fill in the circle on your answer sheet that matches the letter of your answer. CHOOSE THE **ONE** BEST ANSWER FOR EACH QUESTION.

1. How old are you?

   a. 12 years old or younger
   b. 13 years old
   c. 14 years old
   d. 15 years old
   e. 16 years old
   f. 17 years old
   g. 18 years old or older

2. What is your sex?

   a. Female
   b. Male

3. In what grade are you?

   a. 9th grade
   b. 10th grade
   c. 11th grade
   d. 12th grade
   e. Ungraded or other

4. How do you describe yourself?

   a. White - not Hispanic
   b. Black - not Hispanic
   c. Hispanic
   d. Asian or Pacific Islander
   e. Native American or Alaskan Native
   f. Other

5. Compared to other students in your class, what kind of student would you say you are?

   a. One of the best
   b. Far above the middle
   c. A little above the middle
   d. In the middle
   e. A little below the middle
   f. Far below the middle
   g. Near the bottom

6. How often do you wear a seat belt when riding in a car driven by someone else?

   a. Never
   b. Rarely
   c. Sometimes
   d. Most of the time
   e. Always

7. During the past 12 months, how many times did you ride a motorcycle?

   a. 0 times
   b. 1 to 10 times
   c. 11 to 20 times
   d. 21 to 39 times
   e. 40 or more times

8. When you rode a motorcycle during the past 12 months, how often did you wear a helmet?

   a. I did not ride a motorcycle during the past 12 months
   b. Never wore a helmet
   c. Rarely wore a helmet
   d. Sometimes wore a helmet
   e. Most of the time wore a helmet
   f. Always wore a helmet

9. During the past 12 months, how many times did you ride a bicycle?

   a. 0 times
   b. 1 to 10 times
   c. 11 to 20 times
   d. 21 to 39 times
   e. 40 or more times

10. When you rode a bicycle during the past 12 months, how often did you wear a helmet?

    a. I did not ride a bicycle during the past 12 months
    b. Never wore a helmet
    c. Rarely wore a helmet
    d. Sometimes wore a helmet
    e. Most of the time wore a helmet
    f. Always wore a helmet

11. During the past 30 days, how many times did you ride in a car or other vehicle driven by someone who had been drinking alcohol?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or more times

12. During the past 30 days, how many times did **you** drive a car or other vehicle when you had been drinking alcohol?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or more times

13. During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club?

    a. 0 days
    b. 1 day
    c. 2 or 3 days
    d. 4 or 5 days
    e. 6 or more days

14. During the past 30 days, on how many days did you carry a gun?

    a. 0 days
    b. 1 day
    c. 2 or 3 days
    d. 4 or 5 days
    e. 6 or more days

15. During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club **on school property**?

    a. 0 days
    b. 1 day
    c. 2 or 3 days
    d. 4 or 5 days
    e. 6 or more days

16. During the past 30 days, how many days did you **not** go to school because you felt you would be unsafe at school or on your way to or from school?

    a. 0 days
    b. 1 day
    c. 2 or 3 days
    d. 4 or 5 days
    e. 6 or more days

17. During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun, knife, or club **on school property**?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or 7 times
    f. 8 or 9 times
    g. 10 or 11 times
    h. 12 or more times

18. During the past 12 months, how many times has someone stolen or deliberately damaged your property such as your car, clothing, or books **on school property**?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or 7 times
    f. 8 or 9 times
    g. 10 or 11 times
    h. 12 or more times

19. During the past 12 months, how many times were you in a physical fight?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or 7 times
    f. 8 or 9 times
    g. 10 or 11 times
    h. 12 or more times

20. The **last time** you were in a physical fight, with whom did you fight?

    a. I have never been in a physical fight
    b. A total stranger
    c. A friend or someone I know
    d. A boyfriend, girlfriend, or date
    e. A parent, brother, sister, or other family member
    f. Someone not listed above
    g. More than one of the persons listed above

21. During the past 12 months, how many times were you in a physical fight in which you were injured and had to be treated by a doctor or nurse?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or more times

22. During the past 12 months, how many times were you in a physical fight **on school property**?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or 7 times
    f. 8 or 9 times
    g. 10 or 11 times
    h. 12 or more times

23. During the past 12 months, when you went swimming in places such as a pool, lake, or ocean, how often was an adult or a lifeguard watching you?

    a. I did not go swimming during the past 12 months
    b. Never
    c. Rarely
    d. Sometimes
    e. Most of the time
    f. Always

Sometimes people feel so depressed and hopeless about the future that they may consider attempting suicide, that is, taking some action to end their own life.

24. During the past 12 months, did you ever **seriously** consider attempting suicide?

    a. Yes
    b. No

25. During the past 12 months, did you make a plan about how you would attempt suicide?

    a. Yes
    b. No

26. During the past 12 months, how many times did you actually attempt suicide?

    a. 0 times
    b. 1 time
    c. 2 or 3 times
    d. 4 or 5 times
    e. 6 or more times

27. If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?

    a. I did not attempt suicide during the past 12 months
    b. Yes
    c. No

The next ten questions ask about tobacco use.

28. Have you ever tried cigarette smoking, even one or two puffs?

    a. Yes
    b. No

29. How old were you when you smoked a whole cigarette for the first time?

    a. I have never smoked a whole cigarette
    b. Less than 9 years old
    c. 9 or 10 years old
    d. 11 or 12 years old
    e. 13 or 14 years old
    f. 15 or 16 years old
    g. 17 or more years old

30. Have you ever smoked cigarettes regularly, that is, at least one cigarette every day for 30 days?

    a. Yes
    b. No

31. How old were you when you first started smoking cigarettes regularly (at least one cigarette every day for 30 days)?

    a. I have never smoked cigarettes regularly
    b. Less than 9 years old
    c. 9 or 10 years old
    d. 11 or 12 years old
    e. 13 or 14 years old
    f. 15 or 16 years old
    g. 17 or more years old

32. During the past 30 days, on how many days did you smoke cigarettes?

    a. 0 days
    b. 1 or 2 days
    c. 3 to 5 days
    d. 6 to 9 days
    e. 10 to 19 days
    f. 20 to 29 days
    g. All 30 days

33. During the past 30 days, on the days you smoked, how many cigarettes did you smoke **per day**?

    a. I did not smoke cigarettes during the past 30 days
    b. Less than 1 cigarette per day
    c. 1 cigarette per day
    d. 2 to 5 cigarettes per day
    e. 6 to 10 cigarettes per day
    f. 11 to 20 cigarettes per day
    g. More than 20 cigarettes per day

34. During the past 30 days, on how many days did you smoke cigarettes **on school property**?

    a. 0 days
    b. 1 or 2 days
    c. 3 to 5 days
    d. 6 to 9 days
    e. 10 to 19 days
    f. 20 to 29 days
    g. All 30 days

35. During the **past 6 months**, did you **try to quit** smoking cigarettes?

    a. I did not smoke cigarettes during the past 6 months
    b. Yes
    c. No

36. During the past 30 days, did you use **chewing tobacco**, such as Redman, Levi Garrett, or Beechnut, or **snuff**, such as Skoal, Skoal Bandits, or Copenhagen?

    a. No, I did not use chewing tobacco or snuff during the past 30 days
    b. Yes, **chewing tobacco** only
    c. Yes, **snuff** only
    d. Yes, both **chewing tobacco and snuff**

37. During the past 30 days, did you use **chewing tobacco**, such as Redman, Levi Garrett, or Beechnut, or **snuff**, such as Skoal, Skoal Bandits, or Copenhagen **on school property**?

    a. No, I did not use chewing tobacco or snuff on school property
    b. Yes, **chewing tobacco** only
    c. Yes, **snuff** only
    d. Yes, both **chewing tobacco and snuff**

The next five questions ask about drinking alcohol. This includes drinking beer, wine, wine coolers, and liquor such as rum, gin, vodka, or whiskey. For these questions, drinking alcohol does not include drinking a few sips of wine for religious purposes.

38. How old were you when you had your first drink of alcohol other than a few sips?

    a. I have never had a drink of alcohol other than a few sips
    b. Less than 9 years old
    c. 9 or 10 years old
    d. 11 or 12 years old
    e. 13 or 14 years old
    f. 15 or 16 years old
    g. 17 or more years old

39. During your life, on how many days have you had at least one drink of alcohol?

    a. 0 days
    b. 1 or 2 days
    c. 3 to 9 days
    d. 10 to 19 days
    e. 20 to 39 days
    f. 40 to 99 days
    g. 100 or more days

40. During the past 30 days, on how many days did you have at least one drink of alcohol?

    a. 0 days
    b. 1 or 2 days
    c. 3 to 5 days
    d. 6 to 9 days
    e. 10 to 19 days
    f. 20 to 29 days
    g. All 30 days

41. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?

    a. 0 days
    b. 1 day
    c. 2 days
    d. 3 to 5 days
    e. 6 to 9 days
    f. 10 to 19 days
    g. 20 or more days

42. During the past 30 days, on how many days did you have at least one drink of alcohol **on school property**?

    a. 0 days
    b. 1 or 2 days
    c. 3 to 5 days
    d. 6 to 9 days
    e. 10 to 19 days
    f. 20 to 29 days
    g. All 30 days

The next four questions ask about the use of marijuana, which is also called grass or pot.

43. How old were you when you tried marijuana for the first time?

    a. I have never tried marijuana
    b. Less than 9 years old
    c. 9 or 10 years old
    d. 11 or 12 years old
    e. 13 or 14 years old
    f. 15 or 16 years old
    g. 17 or more years old

44. During your life, how many times have you used marijuana?

    a. 0 times
    b. 1 or 2 times
    c. 3 to 9 times
    d. 10 to 19 times
    e. 20 to 39 times
    f. 40 to 99 times
    g. 100 or more times

45. During the past 30 days, how many times did you use marijuana?

    a. 0 times
    b. 1 or 2 times
    c. 3 to 9 times
    d. 10 to 19 times
    e. 20 to 39 times
    f. 40 or more times

46. During the past 30 days, how many times did you use marijuana **on school property**?

a. 0 times
b. 1 or 2 times
c. 3 to 9 times
d. 10 to 19 times
e. 20 to 39 times
f. 40 or more times

The next eight questions ask about cocaine and other drugs.

47. How old were you when you tried **any** form of cocaine, including powder, crack, or freebase, for the first time?

a. I have never tried cocaine
b. Less than 9 years old
c. 9 or 10 years old
d. 11 or 12 years old
e. 13 or 14 years old
f. 15 or 16 years old
g. 17 or more years old

48. During your life, how many times have you used **any** form of cocaine, including powder, crack, or freebase?

a. 0 times
b. 1 or 2 times
c. 3 to 9 times
d. 10 to 19 times
e. 20 to 39 times
f. 40 or more times

49. During the past 30 days, how many times did you use **any** form of cocaine, including powder, crack, or freebase?

a. 0 times
b. 1 or 2 times
c. 3 to 9 times
d. 10 to 19 times
e. 20 to 39 times
f. 40 or more times

50. During your life, how many times have you used the **crack** or **freebase** forms of cocaine?

a. 0 times
b. 1 or 2 times
c. 3 to 9 times
d. 10 to 19 times
e. 20 to 39 times
f. 40 or more times

51. During your life, how many times have you used any other type of illegal drug, such as LSD, PCP, ecstasy, mushrooms, speed, ice, heroin, or pills without a doctor's prescription?

a. 0 times
b. 1 or 2 times
c. 3 to 9 times
d. 10 to 19 times
e. 20 to 39 times
f. 40 or more times

52. During your life, how many times have you taken **steroid** pills or shots **without** a doctor's prescription?

a. 0 times
b. 1 or 2 times
c. 3 to 9 times
d. 10 to 19 times
e. 20 to 39 times
f. 40 or more times

53. During your life, have you ever injected (shot up) any illegal drug?

a. Yes
b. No

54. During the past 12 months, has anyone offered, sold, or given you an illegal drug **on school property**?

a. Yes
b. No

The next five questions ask about AIDS/HIV education and information.

55. Have you ever been taught about AIDS/HIV infection in school?

    a. Yes
    b. No
    c. Not sure

56. In school, have you received instruction on how to prevent AIDS/HIV infection?

    a. Yes
    b. No
    c. Not sure

57. In school, have you received a presentation by someone with AIDS/HIV infection?

    a. Yes
    b. No
    c. Not sure

58. In school, have you been taught how to use a condom ?

    a. Yes
    b. No
    c. Not sure

59. Have you ever talked about AIDS/HIV infection with your parents or other adults in your family?

    a. Yes
    b. No
    c. Not sure

The next eleven questions ask about sexual behavior.

60. Have you ever had sexual intercourse?

    a. Yes
    b. No

61. How old were you when you had sexual intercourse for the first time?

    a. I have never had sexual intercourse
    b. Less than 12 years old
    c. 12 years old
    d. 13 years old
    e. 14 years old
    f. 15 years old
    g. 16 years old
    h. 17 or more years old

62. During your life, with how many people have you had sexual intercourse?

    a. I have never had sexual intercourse
    b. 1 person
    c. 2 people
    d. 3 people
    e. 4 people
    f. 5 people
    g. 6 or more people

63. During the past 3 months, with how many people did you have sexual intercourse?

    a. I have never had sexual intercourse
    b. I have had sexual intercourse, but not during the past 3 months
    c. 1 person
    d. 2 people
    e. 3 people
    f. 4 people
    g. 5 people
    h. 6 or more people

64. The person(s) with whom you have had sexual contact is (are)

    a. female(s)
    b. male(s)
    c. female(s) and male(s)
    d. I have not had sexual contact with anyone.

65. Did you drink alcohol or use drugs before you had sexual intercourse the last time?

    a. I have never had sexual intercourse
    b. Yes
    c. No

66. The **last time** you had sexual intercourse, did you or your partner use a condom?

a. I have never had sexual intercourse
b. Yes
c. No

67. The **last time** you had sexual intercourse, what **one** method did you or your partner use to **prevent pregnancy**? (Select only **one** response.)

a. I have never had sexual intercourse
b. No method was used to prevent pregnancy
c. Birth control pills
d. Condoms
e. Withdrawal
f. Some other method
g. Not sure

68. If condoms were available in all of the following places, to which <u>one</u> place would you be most <u>likely</u> to go if you wanted to obtain condoms?

a. I do not want to obtain condoms.
b. School nurse or counselor.
c. Vending machine in school restroom.
d. Vending machine in restrooms in other places in my community.
e. Local pharmacy or convenience store.
f. Local health clinic or family planning clinic.
g. My parents or other adults in my family.
h. None of the above.

69. How many times have you been pregnant or gotten someone pregnant?

a. 0 times
b. 1 time
c. 2 or more times
d. Not sure

70. Have you ever been told by a doctor or nurse that you have a sexually transmitted disease such as genital herpes, genital warts, chlamydia, syphilis, gonorrhea, AIDS, or HIV infection?

a. Yes
b. No

The next four questions ask about body weight.

71. How do **you** think of yourself?

a. Very underweight
b. Slightly underweight
c. About the right weight
d. Slightly overweight
e. Very overweight

72. Which of the following are you trying to do?

a. **Lose** weight
b. **Gain** weight
c. **Stay** the same weight
d. I am **not trying to do anything** about my weight

73. During the past 7 days, which **one** of the following did you do to lose weight or to keep from gaining weight?

a. I did not try to lose weight or keep from gaining weight
b. I dieted
c. I exercised
d. I exercised and dieted
e. I used some other method, but I did not exercise or diet

74. During the past 7 days, which **one** of the following did you do to lose weight or to keep from gaining weight?

a. I did not try to lose weight or keep from gaining weight
b. I made myself vomit
c. I took diet pills
d. I made myself vomit and took diet pills
e. I used some other method, but I did not vomit or take diet pills

The next seven questions ask about food you ate yesterday. Think about all meals and snacks you ate yesterday from the time you got up until you went to bed. Be sure to include food you ate at home, at school, at restaurants, or anywhere else.

75. Yesterday, did you eat fruit?

    a. No
    b. Yes, once only
    c. Yes, twice or more

76. Yesterday, did you drink fruit juice?

    a. No
    b. Yes, once only
    c. Yes, twice or more

77. Yesterday, did you eat green salad?

    a. No
    b. Yes, once only
    c. Yes, twice or more

78. Yesterday, did you eat **cooked** vegetables?

    a. No
    b. Yes, once only
    c. Yes, twice or more

79. Yesterday, did you eat hamburger, hot dogs, or sausage?

    a. No
    b. Yes, once only
    c. Yes, twice or more

80. Yesterday, did you eat french fries or potato chips?

    a. No
    b. Yes, once only
    c. Yes, twice or more

81. Yesterday, did you eat cookies, doughnuts, pie, or cake?

    a. No
    b. Yes, once only
    c. Yes, twice or more

The next eight questions ask about physical activity.

82. On how many of the past 7 days did you exercise or participate in sports activities for at least 20 minutes **that made you sweat and breathe hard**, such as basketball, jogging, fast dancing, swimming laps, tennis, fast bicycling, or similar aerobic activities?

    a. 0 days
    b. 1 day
    c. 2 days
    d. 3 days
    e. 4 days
    f. 5 days
    g. 6 days
    h. 7 days

83. On how many of the past 7 days did you do **stretching exercises**, such as toe touching, knee bending, or leg stretching?

    a. 0 days
    b. 1 day
    c. 2 days
    d. 3 days
    e. 4 days
    f. 5 days
    g. 6 days
    h. 7 days

84. On how many of the past 7 days did you do exercises to **strengthen or tone your muscles**, such as push-ups, sit-ups, or weight lifting?

    a. 0 days
    b. 1 day
    c. 2 days
    d. 3 days
    e. 4 days
    f. 5 days
    g. 6 days
    h. 7 days

85. On how many of the past 7 days did you walk or bicycle for at least 30 minutes at a time? (Include walking or bicycling to or from school.)

a. 0 days
b. 1 day
c. 2 days
d. 3 days
e. 4 days
f. 5 days
g. 6 days
h. 7 days

86. In an average week when you are in school, on how many days do you go to physical education (PE) classes?

a. 0 days
b. 1 day
c. 2 days
d. 3 days
e. 4 days
f. 5 days

87. During an average physical education (PE) class, how many minutes do you spend actually exercising or playing sports?

a. I do not take PE
b. Less than 10 minutes
c. 10 to 20 minutes
d. 21 to 30 minutes
e. More than 30 minutes

88. During the past 12 months, on how many sports teams **run by your school**, did you play? (Do not include PE classes.)

a. 0 teams
b. 1 team
c. 2 teams
d. 3 or more teams

89. During the past 12 months, on how many sports teams **run by organizations outside of your school**, did you play?

a. 0 teams
b. 1 team
c. 2 teams
d. 3 or more teams

APPENDIX B

Sampling, Survey Administration, Data Weighting and Analysis Procedures

Sampling Procedures

All regular public schools in Massachusetts containing any of the grades 9, 10, 11, 12 were included in the sampling frame (314 total). Private and parochial schools were excluded from the sampling frame. Schools were selected systematically with probability proportional to enrollment size using a random start. The final school sample parallels the statewide population of schools with respect to size distribution. Fifty-one schools were selected for the sample. Superintendents and principals of selected schools were notified by mail of their selection and contacted by phone for their permission to move forward with the survey. Forty-five schools agreed to participate and six refused, yielding an 88 percent school response rate.

In each of the 45 schools participating in the survey, a random selection of classrooms was made. All English, second period, or homeroom classes (depending on the school) were included in the sampling frame. Systematic equal probability sampling with a random start was used to select classes from each school to participate in the survey. Schools had the option of choosing whether or not to notify parents or seek parental consent for student participation in the survey. Because student participation was both voluntary and anonymous, schools were not required to obtain parental consent. In those schools using parental permission or notification procedure, very few students were denied permission to participate.

Based on classroom rosters of the selected classes, 3837 students were selected to participate in the survey. On the days the survey was scheduled, 3054 students completed the survey. This 80 percent student response rate primarily reflects school attendance rates on the days of the survey. Very few students chose not to take the survey.

Survey Administration Procedures

Survey dates were scheduled with contact persons identified by the school principal. Staff members of the Massachusetts Department of Education's Bureau of Student Development and Health (now Learning Support Services) conducted the survey on-site in the selected classrooms of the participating schools. Classroom teachers were permitted to stay in the room if they wished but were asked not to circulate through the room while the students completed the survey. The survey was self-administered, meaning that students read the questions to themselves, and students entered their answers on a separate, scannable answer sheet. Those students who chose not to take the survey were asked to remain in the class and read or sit quietly until the others were finished. No talking was permitted during the survey, which took from 25 to 40 minutes to complete. Completed questionnaires were placed in a manila envelope which was sealed before the survey administrator left the classroom. Completed questionnaires were assembled at the Department of Education and sent off-site for data scanning, cleaning, and preliminary analysis.

Data Weighting Procedures

Data weighting procedures were used to reduce any possible bias in the sample by compensating for differing patterns of nonresponse and to reflect the likelihood of sampling each student. Weighting was also used to adjust for for the oversampling of Boston students; this oversampling was done in order to coordinate the state YRBS with Boston Public Schools' own district-wide YRBS. The weight used for estimation is given by:

$W = W_1 * W_2 * f_1 * f_2 * f_3$
W_1 = inverse of the probability of school selection.
W_2 = inverse of the probability of classroom selection.
f_1 = a school-level nonresponse adjustment factor calculated by school size.
f_2 = a student-level non-response adjustment factor calculated by class.
f_3 = a poststratification adjustment factor by gender and grade.

The weighted results can be used to make important inferences concerning the priority health-risks behavior of all Massachusetts public school students in grades 9 through 12.

Data Analysis Procedures

Data cleaning and preliminary analysis were performed by Westat Inc. of Rockville, Maryland. The preliminary analysis generated point estimates of proportions as well as 95 percent confidence intervals for major and collapsed response categories for all standard survey questions. The majority of point estimates presented in this report were drawn from the preliminary analysis. For comparing estimates of behavior levels over time, the 1993 results excluding Boston were compared to the 1990 YRBS results, which were also weighted but which excluded Boston. Statistical significance of differences in estimates was determined by comparing bounds of 95 percent confidence intervals. The same procedure was used to make comparisons within the 1993 data by grade, gender, and racial/ethnic categories where cell sizes and the response categories provided in the preliminary analysis allowed.

A secondary analysis was used to make additional comparisons within the 1993 data. The secondary analysis was performed at the Massachusetts Department of Education using data provided by Westat and SPSS/PC+ for statistical procedures. For these comparisons, chi-square analysis was used to identify associations at or below the .05 level of significance. For more information about any of these procedures or to obtain actual confidence intervals or p values, please contact the AIDS/HIV Research Coordinator, Massachusetts Deptartment of Education, at 617-388-3300, ext. 387.